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REPORT
OF THE
Industries Reorganization
Committee
1934



A L L A H A B A D :
SUPERINTENDENT, PRINTING AND STATIONERY, UNITED PROVINCES
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TABLE OF CONTENTS

	PAGES
CHAPTER I.—Introductory	1-4
CHAPTER II.—Development of Industries ..	5-25
CHAPTER III.—Marketing	26-45
CHAPTER IV.—Utilization of Hydro-electric Power	46-51
CHAPTER V.—Provision of Finance or rendering of Financial aid.. ..	52-64
CHAPTER VI.—Stores Purchase Department ..	65-77
CHAPTER VII.—Industrial and Technical Educa- tion.	78-114
CHAPTER VIII.—Organization of the Depart- ment.	115-127
CHAPTER IX.—Summary and Financial effect..	128-132
<hr/>	
APPENDIX I.—Note of Messrs. Shah and Duke on the importance of the Leather industry (<i>vide</i> para- graphs 27 and 53) ..	1A-4A
APPENDIX II.—Note on the utilization of hydro- electric power by Mr. Stampe (<i>vide</i> paragraph 95) ..	5A-21A
APPENDIX III.—Outlines of a scheme for a foreign agency of the Em- porium (<i>vide</i> paragraph 80)..	22A-23A
APPENDIX IV.—Typical scheme for an oil mill with power-driven ghannies (<i>vide</i> paragraph 105) ..	24A-25A
APPENDIX V.—Table I.—Statement of loans ad- vanced by the Industries Department since 1917-18 (<i>vide</i> paragraph 109) ..	26A-39A
Table II.—Classified abstract of loans advanced by the Industries Department since 1917-18 arranged by the industries for which they were given (<i>vide</i> paragraph 109) ..	40A
APPENDIX VI.—Abstract statement of grants made by the Board of Indus- tries since 1921-22 (<i>vide</i> paragraph 123) ..	41A-42A

	PAGES.
APPENDIX VII.—Table I.—List of Government institutions showing cost, enrolment and employment among passed students (<i>vide</i> paragraphs 151, 153 and 155)	43A-44A
Table II.—Statement showing the various courses at the Government Technical and Industrial Institutions (<i>vide</i> paragraph 151) ..	45A-53A
APPENDIX VIII.—Table I.—List of Aided Institutions arranged by districts (<i>vide</i> paragraph 201) ..	54A
Table II.—Statement showing certain particulars regarding aided industrial schools (arranged according to industries) (<i>vide</i> paragraph 201) ..	55A-61A
APPENDIX IX.—Statement of stipends, scholarships and prizes at the Government Technical and Industrial Institutions as provided in the budget for 1933-34 (<i>vide</i> paragraph 206) ..	62A-64A
APPENDIX X.—Statement showing particulars of long-term technical scholarships granted by the U. P. Government (<i>vide</i> paragraph 215)	65A-67A
APPENDIX XI.—Statement showing particulars of short-term technical scholarships given by the Industries Department (<i>vide</i> paragraph 215)	68A-69A
APPENDIX XII.—Reorganization scheme for the Government Carpentry School at Allahabad (<i>vide</i> paragraph 189)	70A-72A
APPENDIX XIII.—Budget provision and expenditure on the Industries Department for the years 1921-22 to 1933-34 (<i>vide</i> paragraph 151)	73A-74A
APPENDIX XIV.—Financial effect of the Committee's proposals (<i>vide</i> paragraphs 83 and 245) ..	75A-81A
APPENDIX XV.—Summary of recommendations	82A-96A

LIST OF CORRIGENDA

(REPORT)

- Page 21, paragraph 50, line 3, *for* " 14,00 " *read* " 14,000 ".
- .. 23, .. 53, line 16 *for* " held " *read* " hold ".
- .. 28, .. 64, line 1 *for* " 1921 " *read* " 1919 ".
- .. 28, .. 64, line 2 from bottom *delete* the words " was " and " by ".
- .. 29, .. 64, line 2 from top, *for* " 1924 " *read* " 1923 ".
- .. 48, .. 102, line 7 *for* " 25 " *read* " 75 ".
- .. 49, .. 103, line 3 *for* " mills " *read* " mill motors."
- .. 55, .. 109, line 1 *for* " 14-29 " *read* " 15-15 ".

Line 17, *delete* the word " and " before the word " meto-china " and *insert* a " comma (,) " *after* the word " tanning ".

Line 21 *for* " 1931-32 " *read* " 1930-31 ".

Page 87, paragraph 168, for the 3rd sentence of this paragraph—

" As the principal.....divisional superintendent " *substitute* the following :

" The model weaving schools, which took their places, could not be effectively controlled by the principal of the Central Weaving Institute for want of spare time ; hence their supervision was entrusted to the divisional superintendents ".

Page 91, paragraph 177, line 7, *add* the words " include one year's apprenticeship in recognized workshops, and " *after* the word " which ".

Page 95, paragraph 186, line 7, for the figure " 1924 " *substitute* " 1921 ".

Line 16, *for* the words " an instructor " *substitute* the word " a demonstrator ".

Page 102, paragraph 199, line 17, *delete* the brackets and figure " (4) ".

Page 117, paragraph 223 (iv), lines 3 and 4, from top, *for* the words " on the completion of that work in 1924 " *substitute* the words " In 1923, when this work was nearing completion ";

Lines 8 and 9 from top, *for* the words " now remains.....work " *substitute* the words " now holds charge of the Industries Section under the part-time Deputy Director (Mr. Duke) ".

Page 132, paragraph 245, last line, *for* " January 5," *read* " January 4 ".

(APPENDICES)

Appendix II, page 7A, line 3, from the top, *for* " Schedule C " *read* " Schedule E ".

Appendix II, page 16A, line 4, *insert* " (excluding Aligarh town) " between the words " Aligarh " and " and ".

Page 17A, *delete* the existing note (a), and *re-number* notes " (b) " and " (c) " as " (a) " and " (b) " respectively.

Page 17A, line 5, from bottom, *for* the figure " $7\frac{1}{4}$ " *read* " $7\frac{1}{2}$ ".

Report of the Industries Reorganization Committee

CHAPTER I

INTRODUCTORY

1. The Department of Industries, U. P., was created in 1910 and is now run at a net annual cost of about Rs.9½ lakhs. There is, however, a feeling in many quarters that, if suitable action is taken, it will be possible to get more value out of the outlay on the department than is the case at present. In particular it is considered by some that its development has been lopsided, while others think it has been frittering away its energies in all sorts of scattered and extensive endeavours. It became necessary, therefore, to scrutinize its working in detail to see if there was any avoidable waste and to suggest improvements where necessary, so that it might work more effectively and intensively for the development of industries, possibly in accordance with some carefully drawn up plan.

Circumstances leading to the appointment of Committee.

2. Government accordingly decided in November, 1932, to appoint as a first step a committee consisting exclusively of officials most of whom had experience of the working of the department to survey the whole field of its activities and suggest constructive proposals for re-organization.

Personnel.

The following members were appointed to the Committee :

(1) The Hon'ble Mr. J. P. Srivastava,
Minister for Education and Industries,
United Provinces

President.

(2) Mr. W. L. Stampe, C.I.E., I.S.E.,
(Chief Engineer, Public Works Department
(Irrigation Branch)

(3) Mr. J. L. Sathe, I.C.S., ex-Director
of Industries

(4) Mr. J. C. Donaldson, M.C., I.C.S.,
ex-Director of Industries, and ex-
Deputy Secretary to Government,
United Provinces, Industries Department
.. .. .

Members.

(5) Rai Bahadur Madan Mohan Sinha, M.B.E., Bar-at-Law, ex-Stores Purchase Officer and ex-Director of Industries

(6) Mr. R. C. Srivastava, Deputy Director of Industries (on deputation as Sugar Technologist with the Imperial Council of Agricultural Research)

(7) Mr. S. P. Shah, I.C.S., Director of Industries and Registrar of Co-operative Societies

(8) Mr. J. A. H. Duke, Deputy Director of Industries

(9) Mr. P. M. Kharegat, I.C.S., Secretary to Government, United Provinces, Industries Department

Members

Mr. H. K. Mathur, Under Secretary to Government, Industries Department, was appointed to work as Secretary to the Committee.

Terms of reference.

3. No formal terms of reference were laid down, but it was throughout understood that the Committee should suggest the lines along which the work of the department may be re-organized within the limits of its present normal budget. The task before the Committee was thus one of re-organization and not of increasing or curtailing expenditure.

The Committee surveyed the working of the department under the following heads :

(1) The development of industries—major, minor and cottage ;

(2) Marketing ;

(3) The use of hydro-electric power for industrial development ;

(4) The Stores Purchase Department ;

(5) Financial Aid ;

(6) Technical and Industrial education ;

(7) The organization of the department ;

and miscellaneous matters.

Method of investigation.

4. A considerable amount of information was made available to the Committee regarding the various activities of the department and particularly about Government technical and industrial institutions and aided schools. Mr. Stampe supplied the Committee with information about the activities of the hydro-electric department with special reference to the industrial uses of hydro-electric

power. The views of some consuming officers were ascertained in regard to the working of the Stores Purchase Department. With this object the Committee requested Mr. S. T. Hollins, Inspector General of Police, Colonel Palmer, Inspector General of Prisons, and Messrs. Cantin and Anderson, Chief Engineers, Public Works Department, Buildings and Roads and Irrigation Branches respectively, to appear before it and give it the benefit of their experience and the points of view of their respective departments. Representatives of the Commercial Credit Corporation, Delhi, who happened to be present at Lucknow during the preliminary meeting of the Committee, were consulted about the system of rendering financial aid by means of a financing corporation. As it appeared that some institutions might have to be closed down, their heads were given an opportunity of explaining to the Committee the value of the work done at those institutions. Mr. Barve, the Business Manager of the Emporium, was also examined about its present and future activities.

Meetings.

5. The Committee met five times. At the preliminary meeting held on December 17-18, 1932, which was attended by all the members, a detailed list of subjects was drawn up and tentatively discussed. At this meeting two sub-committees were appointed—one consisting of Messrs. Kharegat and R. C. Srivastava to evolve proposals about the development of cottage industries, and another consisting of Messrs. Sathe and Shah to report about the methods of rendering financial aid. The second meeting, which was attended by all members, except Messrs. Duke and Stampe, was held on February 9 and 10, 1933, when some consuming officers were examined as regards the Stores Purchase Department and some questions in connexion with industrial and technical education and the development of cottage industries were discussed at length. At this meeting a sub-committee consisting of Messrs. Shah, R. C. Srivastava, and Rai Bahadur Madan Mohan Sinha, was appointed to draw up a scheme for the future working of the Government School of Arts and Crafts, Lucknow, in the light of the discussions held at the meeting. The All-India Conference of Ministers and Directors of Industries was held at Simla from July 13 to 15, and thereafter the next meeting of the Committee took place at Naini Tal on September 20 to 25, 1933. This was attended by all members, except Messrs. Donaldson and Sinha.

Besides examining the heads of some institutions and Mr. Barve, definite conclusions covering the entire scope of the enquiry were arrived at. The fourth meeting of the Committee was held on December 5, 1933, at which all members except Messrs. Donaldson and Sinha were present and the draft report was discussed. The fifth and last meeting, which was attended by all members except Messrs. Stampé and Danaldson, took place on January 3-4, 1934, when the report was finally adopted.

*Scope
and inter-
relation
of our
recom-
menda-
tions.*

6. The primary consideration we have had to keep in the forefront is that of the financial limitations of the province, especially at the present time. Realizing that any increase of expenditure in the prevailing financial stringency is out of question and yet feeling the need for increased activities in certain directions, we have had to suggest various economies, so as on the one hand to keep within the existing normal budget allotment and on the other to enable the department to take up work along new lines. Our proposals for retrenchment and expansion of work are, therefore, interlinked and must be taken as a whole.

*Acknow-
ledgments.*

7. Our thanks are due to the heads of departments who on our request placed before us their views about the working of the Stores Purchase Department, to the Director of Industries and his staff for preparing for our use an enormous amount of material, and to the Secretariat for the overtime work that they had to perform. The Committee is also indebted to those of its members who constituted its several sub-committees and particularly to Messrs. Kharegat and Shah for the industry and care with which they have looked after the drafting of the Report. Lastly, we record our appreciation of the services of our Secretary, Mr. H. K. Mathur, who has had to work at very hard pressure at every stage of our inquiry in addition to his normal official duties.

CHAPTER II

DEVELOPMENT OF INDUSTRIES

8. The *raison d'être* of a provincial department of industries must be to help in the development of the industries and trade of the province by all practicable means at its disposal. The principal methods which have been, or can be, adopted by it for the purpose may be summarized as follows :

Scope of State-aid in a province.

(i) to give expert advice on the technical and commercial aspects of industries, especially as regards improved methods, machinery and appliances ;

(ii) to collect, compile and disseminate industrial and commercial intelligence to those interested, actually or potentially, in industry and trade ;

(iii) to provide adequate facilities for industrial and technical instruction in order to supply industries with trained personnel of all grades ;

(iv) to carry on experimental and research work, including the testing of commercial possibilities, on behalf of industries which cannot afford the expense of such work ;

(v) to help in the preparation of schemes for establishing industries and especially those involving the use of cheap hydro-electric power ;

(vi) to supply the whole or a part of the finance required for " block " and working expenses ;

(vii) to grant subsidies on production, etc. ;

(viii) to provide marketing facilities, especially for the products of minor and cottage industries ;

(ix) to purchase the products of industries for the public service.

9. There are many other important modes of State-aid, such as the imposition of protective tariffs, manipulation of currency, provision of industrial banking facilities on an all-India scale, fixation of railway freights so as to assist industrial development, regulation of inland, coastal and other sea freights with the same

Other forms of State-aid.

object, the supply of overseas commercial intelligence and other forms of trade consular work, etc. These are, however, beyond the purview of a provincial department of industries. Our findings and proposals are limited to State-aid to industries within the powers of the Local Government and the limits imposed by its financial resources—both present and potential.

*Need for
concentrated
effort.*

10. The scope for useful work by a provincial department is almost unlimited, but with its limited resources it cannot take up everything simultaneously. Hence we have throughout been guided by the need for concentration of effort and intensive development for some years rather than extensive but superficial endeavour. In order to enable a clear cut programme of work to be chalked out in conformity with this guiding principle, we propose to survey briefly the present position of the various U. P. industries and study, from the point of view of State-aid, their problems and requirements in the light of modern trade tendencies.

*Classification of
industries*

11. The mode and extent of the aid that can be given to industries must vary with their character and magnitude. Though no sharp line of demarcation can be drawn between different kinds of industries, they may for the sake of convenience be divided into three categories, viz.—

(A) major organized industries carried on in central factories in which mechanical power is utilized on a large scale ;

(B) minor industries which are carried on in smaller factories utilizing mechanical power on a small scale ; and

(C) cottage industries in which work is done, generally speaking, in the homes of the artisans and occasionally in small factories run by small industrialists of the *entrepreneur* type, power-driven machinery being rarely used.

A—Major Industries

12. The U. P. occupies a position of more than average importance in the factory-scale industrial system of modern India. The progress made during the past few years may be gauged from the fact that the number of regulated factories has risen from 224 in 1914 to 505 in 1932 and the number of workers employed there n from 62,500 to 103,500. To a certain extent the

increase is only nominal, being due to a change in the factory law whereby the basis for regulation was reduced from 50 to 20 workers. But it can be safely asserted that, in relation to its various resources, the industrial development of the province has been fully up to that of India as a whole. Its five most important major industries now are, (1) textiles, (2) sugar, (3) oil, (4) glass and (5) leather and leather-working.

13. The number of cotton ginning and pressing factories has risen from 118 in 1920-21 to 124 at the present time and of cotton mills from 18 to 24. The industry is well organized and the only direction in which the department has been able to give assistance to it is the supply of a part of the trained staff, largely of the subordinate class. The province possesses the oldest and largest woollen mill in India ; no other large woollen mill has, however, followed in its wake. The weaving of silk is on the programme of certain mills but this industry has so far not been taken up on a scale that need be considered.

*Textiles
(cotton,
woollen
and silk)*

14. The U. P. possesses certain special advantages favourable to the development of a factory-scale oil industry. Its output of oil-seeds comprises 154,000 tons of linseed, which is 40 per cent. of the total amount produced in India, while the corresponding figures in the case of sesamum are 112,000 and 21 per cent. and in that of rape and mustard seed 454,000 and 45 per cent. It also supplies a large internal market for the primary and secondary products of the oil industry and can command the oil markets of the Punjab, Bihar and Orissa, Bengal, and portions of Rajputana and Central India. The factory-scale oil industry of the province has made considerable progress since 1914. Its important centres are Cawnpore, Aligarh, Agra, Bahraich and Chandausi. U. P. mills hold a large number of Government and Railway contracts for oils and soaps.

Oil.

15. The Oil section of the Technological Institute, Cawnpore, has been assisting persons and firms engaged, or about to be engaged, in the oil industry not only in the United Provinces but also in other parts of India. Broadly speaking, the assistance has taken the following forms :

- (i) Advice regarding the introduction of new methods, machinery and appliances.
- (ii) Re-modelling of existing plants.

(iii) Utilization of *neem* seed.

(iv) Experimental work to ascertain the optimum conditions.

(v) Pioneering work for the manufacture of settled and of milled toilet soaps in the province.

This section has also assisted in the development of subsidiary oil and allied industries, e.g. boiled oils, paints and varnishes, soaps, oil cake, manure, etc. The prevailing trade depression has hit the industry hard and some of the oil mills are not working to their full capacity. This, however, may be only a passing phase and, when trade revives, the industry is likely to regain its footing.

16. A number of important problems still remain. By way of illustration may be mentioned the following :

(i) The manufacture and improvement of secondary (e.g. boiled oils, soaps, paints, etc.) and tertiary products (e.g. varnishes, sulphonated oil soaps, etc.).

(ii) Experimental and research work on the commercial utilization of bye-products, e.g. glycerine.

(iii) Examination of oil-seeds for their qualities and defects.

(iv) Analysis, specification and certification of oil products.

(v) Help in the evolution of standard specifications and their acceptance by various provincial and all-India authorities.

(vi) Trial and testing of new classes of oil-producing plants in conjunction with the Agriculture and Forest Departments.

(vii) Examination of oils available in India but not utilized for commercial and medicinal purposes.

(viii) Designing of small economical plants for the use of industrialists working on a cottage and small-scale basis.

(ix) Clarification of the oils produced by cottage and minor industries and their utilization for soap-making, etc. for rural or local consumption.

17. The United Provinces accounts for more than half the sugar-cane grown in India and a large proportion of the cane produced is of improved varieties. If all of it were converted into white sugar, the production would be more than sufficient to meet the entire Indian demand for such sugar. There are now as many as sixty regulated sugar factories operating on the vacuum pan process. The selection of Cawnpore as the headquarters of the Sugar Technologist to the Imperial Council of Agricultural Research is due to the importance of the United Provinces in the sugar industry of India.

18. The sugar section of the Technological Institute has been assisting the sugar industry in various ways, such as—

(i) Giving expert advice in regard to the selection of sites, purchase of machinery, technical manufacturing problems, etc.

(ii) Drawing up schemes and specifications for factories.

(iii) Preparing lay-out plans for factories and checking those supplied by sugar engineering firms.

(iv) Designing and testing small cane-mills and testing machinery made by private engineering firms.

(v) Collecting and disseminating commercial and other information relating to sugar.

(vi) Carrying on research in connexion with the various problems of the industry.

19. Here again, there are several important problems deserving the department's attention. They relate partly to the industrial aspects and the difficulties of sugar manufacturers, and partly to the agricultural aspects and the difficulties of the cane-growers. Among the most important problems are (i) the securing to the cane-grower of a fair price for his cane, (ii) the industrial utilization of molasses and other bye-products, (iii) the improvement of the open-pan process so as to secure a higher yield of sugar, (iv) the supply of properly trained sugar chemists and engineers, (v) co-ordination as regards marketing, so that cut-throat competition may be avoided without, at the same time, exposing the industry to the risk of stagnation, (vi) co-ordination among factories so as to secure credit

on easier terms, and (vii) assistance in establishing a special engineering industry in the province, so that all the simpler parts of sugar machinery could be made and repaired locally.

Glass.

20. Glass is another staple and, in many ways, a characteristic industry of this province. For centuries Firozabad and Nagina have been noted for different branches of the industry. Skilled hereditary glass-makers (*kacheras* or *shishgars*) are, therefore, available in the province. Suitable sands for the manufacture of glass can be had in or near the province—for example, at Bargarh, Dehra Dun, Lohagarh, Siwai Madhopur, etc. Lime of a fairly satisfactory quality is also available at Dehra Dun, Katni, Maihar, etc. Coal has to be imported from the Bengal and Bihar coal-fields, but these are not very far from the province. Soda is obtained from or through Calcutta. The factories at Bahjoi, Naini and Balawali are among the important glass factories in India, and the sheet and plate section of the Bahjoi Glass Works is said to be the only factory of its kind in the whole of Asia outside Japan. In and near Firozabad there are also numerous glass factories for the manufacture of bangles and sundry glass articles on cottage lines. The aggregate annual turnover of glass factories in the province has been estimated at about 25 lakhs per year.

21. The claims of this industry attracted the attention of the department as early as 1916. A Glass Expert was appointed; he was, however, more a blower than a chemist or scientist and his appointment did not produce any appreciable effect on the industry, and after three years his services were dispensed with. Apart from the grant of loans to the Naini and the Bahjoi factories, little has since been done to help the industry.

22. Some of the problems of this industry, in the solution of which the department can assist, are named below :

(i) Analysis and examination of the raw materials available in India, e.g. sands, lime-stone, refractory materials, etc.

(ii) Drawing up of specifications of each class and grade of glass.

(iii) Examination and testing of imported materials, e.g. soda, borax, colouring agents, pots

and crucibles ; fixation of their specifications or standards ; advice to industrialists on these issues.

(iv) Improvement of the mixtures in current use, which appear to contain excess of soda.

(v) Improvement of the technique in respect of the furnace, fuel, firing processes, temperatures, etc.

(vi) Utilization of the deposits of sillimanite available in India and examination of the possibility of using it for the manufacture of crucibles.

(vii) Scrutiny of the fuel ratio with the object of reducing the cost of production.

(viii) Experimental and research work relating to the manufacture of new glass lines, e.g. resistance glass for chemical and scientific apparatus.

(ix) Similar work relating to the colouring of glass and glazing materials.

(x) Testing of glass products under standard conditions and their specification and certification.

The department can also help in improving the pottery made at Khurja, Chunar, Nizamabad, and other places.

23. The province has one of the two largest complete leather-making and leather-working factories in India. The only important leather-making and leather-working Army Factory managed by the Ordnance Department is also situated at Cawnpore. About ten other tanneries working on factory lines are to be found at Cawnpore and Agra. Agra is the most important centre for the manufacture of leather foot-wear in the United Provinces—perhaps even in India while for leather goods in general, Cawnpore still holds the premier place in India.

*Leather
making
and
working.*

24. There was for some years a leather section at the Technological Institute, but it was closed down last year as the local Government came to the conclusion that there was not much scope for the Department of Industries to do really useful work for the benefit of the factory-scale tanning industry. The small-scale industry—carried on along minor or cottage lines—has, however, its own problems, some of which are :-

(i) Selection and determination of the optimum conditions for the use of suitable materials for curing and preserving hides and skins ;

(ii) the introduction among village tanners of chrome processes for tanning and finishing lining leathers and for making and currying *charsa* leather so that it can withstand decomposition due to constant immersion in water ;

(iii) the manufacture of suitable glue, gelatine and similar products from waste ; and

(iv) the introduction of inexpensive tools and appliances among cottage workers for finishing the products.

*Other
major
industries.*

25. Among other major industries may be mentioned a match factory, a paper mill and a factory for manufacturing sulphuric and nitric acids. There are also a number of flour mills ; a big loan was given to a flour mill some twelve years ago but it only resulted in a heavy loss to Government. A straw-board factory has been recently set up at Saharanpur and experimental work for the utilization of linseed straw for the manufacture of straw-boards is on the programme of the Technological Institute, Cawnpore.

*Scope of
work.*

26. This brief survey of major industries shows that the only help which it has so far been possible to give them is occasional expert advice, the provision of staff with some degree of technical training, and in some cases, loans. The products of major industries like textiles and leather have also been purchased through the Stores Purchase Department. It is, however, clearly impossible for the department to help all industries in all directions. We, therefore, recommend that a few promising industries should be selected ; and they should be assisted intensively in every practicable manner. We attach great importance to this but we do not imply that the department should have nothing to do with other major industries. There will always be various general problems affecting all kinds of industries with which it must concern itself ; and the department must give such assistance as it can to all industries and keep in touch with them. But it must devote special attention to a few selected ones and carry on intensive work for them. If as a result even two or three industries are placed on a sound basis in say five years, it will be no mean achievement.

27. The three major industries which we suggest should be selected for intensive work are (1) Sugar, (2) Oil, and (3) Glass. Messrs. Shah and Duke, however,

consider that the various leather industries—whether run on factory lines or otherwise—should be among those selected for intensive development and should take precedence over glass. They hold that as the Sugar Technologist is responsible for the development of the sugar industry of India as a whole, all that the provincial department need do for that industry is to offer its full co-operation to him. They have explained in a separate note (*vide* Appendix I) their views about the importance of the leather industry and the need and scope for State-aid to it. The other members, however, feel that this industry needs intensive work only as a minor and cottage industry, specially in the direction of finance and marketing. They doubt whether the organized industry on factory lines needs assistance at present either of a technical or of a financial nature.

B—Minor Industries

28. The line of demarcation between “minor” and “cottage” industries cannot always be drawn with reference to particular industries. Ordinarily, both types are found side by side. The difference between the problems of, and the modes of State-aid to, minor and cottage industries is more a question of degree than of kind; only, in the case of cottage workers the difficulties are more acute and their solutions more difficult and expensive to the State. It is not possible within the limits of a report like this to give an exhaustive list of minor industries. Only some of the more important among them may be mentioned and their problems indicated.

29. There are a large number of sugar factories operating on the open-pan system. Such sugar-makers (called *khandsaris*) generally buy juice crushed by the cane-growers themselves. The juice is boiled into *rab* and then converted into a low grade white sugar, usually with the aid of centrifugals operated by some form of mechanical power. Some indigenous methods of converting *rab* into white sugar are also employed. About 300,000 tons of sugar are produced in the province in this way, chiefly in the Meerut and Rohilkhand divisions. The main problem of this industry today is how to withstand the competition of Indian factory-made white sugar. Even though the *khandsaris* purchase juice (sometimes even cane) at very low rates, they are unable

*Open-pan
sugar
factories.*

to work at a profit as the yield of sugar by the open-pan process is very low. Besides, the product is of a distinctly lower quality and the preference which *khandsari* sugar used to enjoy, especially among orthodox Hindus, is fast going out. Hence the primary requirement is to increase the percentage of sugar extraction. Although the prospects do not appear to be bright, experimental work with this object in view is already in hand. The alternative is to try to develop a small-scale vacuum-pan plant and an experiment in this direction is being carried out by the Hydro-electric Department in the Bijnor district.

Oils and Soaps.

30. The problems in the case of the manufacture of soaps as a minor industry and of secondary and tertiary oil products are largely similar to those that face large-scale manufacturers in the United Provinces. Generally speaking, the milling of such soaps is defective in one respect or another. Although their marketing does not appear to be difficult, a central marketing organization, which could guarantee uniform quality and reasonable value, would greatly benefit this industry. There appears to be scope for the development not only of an internal U. P. trade, but an export trade to other provinces as well.

Engineering.

31. The use of machinery has been increasing gradually. The hydro-electric schemes and the rapid development of motor transport and of the sugar industry are among the important factors that have accelerated the process. Thus the engineering industry in general has been steadily expanding. The Mechanical and Electrical Engineering department of the Benares Hindu University, the Technical College at Dayalbagh and the three Government Technical Schools help in the provision of suitably trained staff of all grades. But a few men with foreign technical qualifications appear to be needed for the proper development of this industry. A branch of this work which seems to offer considerable scope for expansion is the re-rolling of scrap iron (e.g. discarded rails, girders, etc.), and similar scrap, into flats, squares and rounds of various sections. The Stores Purchase Department lent its support recently to a Cawnpore firm doing this work and is thereby said to have enabled it to survive the competition of powerful rivals. The subsidiary industry of hollow-ware manufacture is showing

no progress in the United Provinces. This and other likely engineering industries appear to need the attention of an industrial engineer.

32. The manufacture of pad and tower bolts, locks, various forms of cutlery, lamp stands, plate and other classes of hardware, is already an established industry of both "minor" and "cottage" types. Its principal centres are Agra, Aligarh, Khurja, Meerut and Moradabad. Electro-plating of nickel, chromium, silver and gold has come into existence in the principal cities of the province. The chief problem is to reduce the cost of production, so as to enable the local manufacturers to compete with cheap mass-produced imported articles, and for this purpose extensive experimental work beginning with the design and manufacture of cheap pressed locks is necessary. Similarly, assistance towards experimental and research work in connexion with the manufacture of electric fans and motors also appears to be advisable; as this is an infant industry it may also need some financial accommodation and help from the Stores Purchase Department.

*Hardware
and
electro-
plating.*

33. The imposition of a high tariff duty on imported gold and silver threads has enabled this characteristic Benares industry to maintain its ground and even to expand to an appreciable extent. It is carried on both "minor industry" and on "cottage" lines. The Mining and Metallurgical Department of the Benares Hindu University can undertake experimental work in various directions, but it appears to be desirable to study the *modus operandi* of the French industry and ascertain exactly how it is able to combine quality with cheapness. It is said that a thorough-going division of work and specialization are responsible for its retention of a part of its old market in India in spite of the high protective duty. Now that a factory under French auspices has been set up at Bangalore, the prospects of the Benares industry capturing the South Indian market have receded.

*Gold and
silver
thread
manufac-
ture*

34. One of the chief difficulties of blanket weavers and carpet makers is the difficulty of getting suitable woollen yarns at reasonable rates. Hand-spun yarn is cheaper, but is not sufficiently uniform. An experimental plant was ordered out by Government with the intention of demonstrating the potentiality of wool spinning as a minor industry. This has now been lent

Textiles.

to a co-operative society at Najibabad and serves as a practical demonstration of small-scale mechanical spinning of yarn suitable for local requirements. A similar but more modern plant is working at Dayalbagh; there also the yarn produced is woven locally. There appears to be scope for a few more of such plants, particularly in the hill areas or where cheap power is available. The manufacture of hosiery, either in conjunction with the large-scale industry or as a minor industry, is already established in the province; but it has been hit hard by the prevailing trade depression and, still more, by the competition of imported hosiery. The main problem here appears to be that of marketing the products.

Fountain pens.

35. A small new industry—manufacture of fountain pens—has sprung up at Agra, Lucknow and Benares. The two former manufacture fountainpen nibs also. It is doubtful, however, if the pens made and marketed by small units will be able to establish themselves against the competition of well-advertised imported pens and nibs, which have already captured the market. Moreover, the Indian market demands cheap moulded rather than bored-out pens and this subject deserves to be further studied abroad.

Woodwork.

36. Bareilly is easily the most important centre of the wood-working industry. Furniture is made largely on cottage lines, following more or less the same organization as in the case of other cottage industries. But, a few firms have taken this up as a minor industry utilizing mechanical power. The local Wood-working Institute has been supplying trained men for the furniture and wood-working trades. The Indian furniture industry is now threatened with an invasion by cheap mass-produced common articles of furniture imported from the Baltic States. Although, owing to the great distance of the markets served by Bareilly from the ports, this invasion has not yet assumed a serious magnitude in the United Provinces, the industry is bound gradually to lose some of its markets, principally for cheap chairs, tables and teapoys, unless costs of production, packing and transport are reduced. Closer co-ordination is required between the manufacturers, with a view to the acceptance of standard specifications as a preliminary step towards mass-production; the department can give a useful lead in this direction.

37. It will be seen from this survey that minor industries have their own problems which call for solution and help from the department. A certain amount of assistance has been given in the past by the training of mechanics, fitters and similar subordinates for the various engineering trades ; and experiments and research have been undertaken from time to time for the benefit of some industries. There is, however, no definite programme. We suggest that the department might concentrate its attention on the following main lines of help :—

Scope of work.

(1) Furnishing expert advice and commercial intelligence relating to every phase of the industries concerned, and in certain cases help in the evolution of standard specifications.

(2) Study of the main technical problems and experimental work at State expense to solve them.

(3) Marketing and financial accommodation for marketing.

Efforts should also be made to help educated middle-class youths, especially the ex-students of the department's institutions, to set up in such industries.

C - Cottage Industries

38. Within the compass of a report like ours it is not possible to give an exhaustive list of all cottage industries. Some of them are of purely local importance ; some others are closely associated with agriculture and animal husbandry. These can hardly be considered to be within the purview of a provincial department of industries and trade. There are, however, a large number of cottage industries of more than local importance ; in fact, U. P. is pre-eminent for its variety of handicrafts. These may be sub-divided into (i) artistic and (ii) non-artistic, and the more important of them will now be mentioned.

39. *Moradabad and Benares brass* —The manufacture of engraved and lacquered or enamelled brass-ware still continues to be the speciality of the Moradabad industry. Benares has for a long time past specialized in line and repoussé work on sheet and hollow-ware, generally of brass and copper. Both the Moradabad and the Benares industries used to cater for overseas markets also, but this trade is said to be declining,

Artistic Handicrafts.

particularly at Benares. The quality of the brass and other raw materials used as well as the craftsmanship have gone down considerably at both centres.

40. The industrial survey of the province (1923-24) showed that this industry then gave employment to about eight thousand persons. The artisans are financed by local dealers, to or through whom the products are ultimately marketed. Firms whose quality and dealings can be depended upon are available at each centre, but owing to the constant price cutting competition quality goes on deteriorating. The only assistance that the department has so far found it feasible to render is, the provision of instruction, and of marketing facilities through the Emporium. A loan was also advanced to a Moradabad firm for the establishment of an export trade. Unfortunately, it endeavoured to market only the cheapest class of articles, not really representative of genuine Moradabad craftsmanship, and this is said to be the principal reason why the loan did not prove particularly successful.

41. Broadly speaking, the main problems that have to be tackled in connexion with this industry are—(i) improvement of commercially-promising designs (including the inauguration of new ones and the adaptation of old ones to modern tastes and requirements), and (ii) marketing. Practical instruction in improved technique is also required, while co-operative finance for the purchase of materials and tools and the sale of the products is also indicated.

42. *Gold and silver brocade and embroidery*—The manufacture of fabrics made wholly or partly with gold or silver thread has throughout the ages been a speciality of Benares. Such fabrics are made principally for the internal Indian markets. The industry is organized on the lines usually followed by all fairly developed cottage industries. The hereditary skilled artisan has little to learn so far as manipulative efficiency is concerned. But the industry needs help as regards (i) publicity and propaganda in overseas markets, (ii) marketing in India and abroad, and (iii) the improvement of designs and appliances and other forms of technique.

43. *Artistic wood-work*—There are three principal centres which specialize in different lines of artistic

wood-work, viz., Saharanpur, Nagina and Mainpuri. Saharanpur specializes in carving and fret work; the predominant scheme of designs is the vine branch, bunches of grapes and leaves. Various articles are produced, principally screens, teapoys, tea tables and trays. It was estimated in 1923-24 that about 250 persons were employed in the industry and the value of the trade amounted to Rs.1,20,000 per annum. Nagina specializes in bas-relief work, usually on ebony; there is no fret-work. The surfaces so wrought are stained deep dark. The designs are based on geometrical patterns. The articles generally produced are walking sticks, cash and jewellery boxes, cigarette-cases, and similar small articles. The industry used to employ about 40 to 50 persons. The speciality of Mainpuri is the inlaying of brass, copper or other metallic wire and pieces in wood, generally *sheesham*, for making such things as tables, teapoys, ceremonial chairs, trays. Here also the designs are based on geometrical patterns.

44. Government took over an industrial school at Nagina, but it was run as an ordinary carpentry school and was recently closed down. For the benefit of the Mainpuri wire-inlay industry an instructor has been maintained for several decades, but no tangible benefit appears to have resulted. In fact, all these industries are declining; the principal defects are :

- (i) The use of unseasoned and inferior timbers.
- (ii) Progressive deterioration of craftsmanship.
- (iii) Lack of finish and polish, use of inferior fittings, stains and other materials.
- (iv) Lack of new designs, and inability to work out new classes of articles.
- (v) Insufficient attention to the development of overseas markets.

45. *Artistic pottery*—Khurja, Nizamabad and Chunar specialize in different styles of artistic pottery, but the designs, finish, material are all unsuitable or unsatisfactory. The present value of the production at all the three centres does not perhaps exceed a few thousand rupees. The main difficulties have been :

- (i) Inability to improve the body composition so as to make the articles less fragile and less porous.

- (ii) Inability to think out new classes of articles.
- (iii) Defective designs, appliances and technique, particularly in the matter of firing temperatures.
- (iv) The use of inferior glazing materials resulting in cracks in the glazed surfaces.

A grant for research work was sanctioned recently by the Board of Industries, the results obtained so far are said to be promising.

46. *Jewellery and gold and silverware*—The principal centres for the manufacture of jewellery and gold and silverware are Lucknow, Benares and Agra. The trade in the products of these industries is seasonal. Government help has so far taken two forms, viz., (a) stocking of a few articles for sale through the Emporium and (b) the maintenance of certain classes in the crafts section of the School of Arts and Crafts. The scope for State-aid is narrow.

47. *Miscellaneous*—A number of other artistic cottage industries are also still carried on, such as the *chikan* work of Lucknow; the Farrukhabad, Bulandshahr and Lucknow styles of printing on silk, cotton and other fabrics; and the marble and alabaster work of Agra. Lucknow produces small ornamental articles cast from gun-metal into which silver ornamentation is beaten in after the design has been engraved. The ivory carving industry of the same place is gradually dying out, partly because of the high cost and partly on account of the competition of other centres in India which are more favourably situated.

Non-artistic Handicrafts.

48. *Textiles*—The chief non-artistic cottage handicraft is the manufacture of textiles—cotton, silk, woollen and mixtures. The one tangible achievement on behalf of this industry is the introduction of the flyshuttle loom. Certain new lines of work have also been assisted, e.g. the weaving of Cossi silks at Benares and Shahjahanpur, and the manufacture of one-piece blankets by the blanket-weavers of Najibabad. The chief directions in which help is required are the adoption of efficient appliances and of new and improved designs, the supply of technical and commercial information, and facilities for marketing.

49. *Leather making and working*—Leather-making and finishing of leather ranks next after the handloom

industry, and was recently found to give employment to well over one lakh of the population of the Province including about 72,000 actual tanners. Some work has been done by the Tanning School at Fatehpur, but the industry, which is carried on at a number of other centres, requires attention in the direction of improving the indigenous methods of tanning as carried on in the villages without adding appreciably to the cost. Leather working comprises the manufacture of footwear, harness and saddlery, travelling kit, *chairs*, thongs, leather-upholstery and miscellaneous goods. For footwear, Agra holds the pride of place not only in the United Provinces but perhaps also in India. In 1923-24 this industry gave employment at Agra alone to about 25,000 persons, its value then being Rs.40 lakhs a year. It is run on cottage lines but is much better organized than the cottage tanning industry. Small capitalists belonging to the middle classes take to it more kindly than to leather-making. Some schools have been maintained or helped on behalf of this industry, but it is doubtful whether they have succeeded in materially assisting it. The chief form in which assistance is needed by it, is in the direction of marketing.

50. *Miscellaneous* The manufacture of brass and copper ware for ordinary household use is an industry of some importance giving employment to about 14,00 persons. The weight of the outturn was once estimated to be about $1\frac{3}{4}$ lakhs of maunds per annum. The manufacture of plate and other table-ware and of tin-plated utensils like *thalis*, *katoras*, *lotas* and vases is a speciality of Moradabad. Locks, cutlery, hardware and furniture are also manufactured largely on cottage lines. For centuries past Kanauj has been the main centre for the preparation of perfumes; in 1922 it was estimated that the value of this trade amounted to about Rs.12 lakhs per year. Both the industry and the trade have, however, been on the decline. The technical processes of distillation require to be improved, but as the distillation plants have to be movable, the problem presents considerable difficulties. A number of other small industries have also come to be established in the Province, such as the manufacture of gold and silver thread by the "electro-deposition of metal" process, boot polishes and creams chiefly at Lucknow, Agra and Aligarh; boot and shoe laces at Lucknow; electric lamp stands at Aligarh; drug extracts,

tinctures and other pharmaceutical preparations at Cawnpore; disinfectants at Lucknow and Cawnpore; Turkey-red oil and other preparations for the textile (dyeing and finishing) industry at Cawnpore.

*Scope of
work.*

51. The chief direction in which an attempt has hitherto been made to help cottage industries is by the establishment of a number of industrial schools intended to improve the designs, the technique and hereditary methods of work of the artisans. Their actual achievements have, however, not come up to expectation; they have rarely risen above in effectual efforts to impart practical instruction, mostly to non-artisan boys. The Emporium has helped in the marketing of the artistic products of cottage industries to the extent of about Rs.25,000 to Rs.30,000 a year; it has, however, touched only a fringe of the problem. The greatest need of cottage workers at the present time is State-aid towards remunerative marketing; there is considerable scope for useful work in this direction. Another principal direction in which they require help from the State is the improvement of the traditional designs and the introduction of new ones, and their adaptation to new classes of goods. To put it briefly, cottage workers need help and guidance as regards both marketing and production.

D—Expert Advice

52. The extent of the assistance which the department can give to industries must depend largely on its capacity to give expert advice to those in the industries and trades concerned. For the major industries it must have on its staff a number of experts, each responsible for the intensive development of a particular industry. Each expert should be able to devote the major part of his time and energy to the industry placed in his charge—especially to problems connected with research and marketing—and be comparatively free from teaching duties. He should maintain live contact with the trade, watch markets, and be fully posted up with information about this aspect of his work. He should be able to advise prospective industrialists about the location of factories, the size and type of plant needed, its initial and working costs in relation to output and quality, etc. In short, he should be able to give as complete technical, industrial and commercial advice and information as possible.

These experts should be empowered to perform the necessary administrative functions, carry on correspondence with other government officers, business men and the management of mills, and have direct access to the Director. Their status might be approximated to that of deputy directors ; and they should feel that the development of the industry placed under their respective charge is their " special responsibility".

53. We recommend that an expert should be attached to the department for each of the three selected major industries, viz., sugar, oil and glass. The honorary services of the Sugar Technologist to the Imperial Council of Agricultural Research are available to the Department at present ; hence it is not necessary to maintain a separate sugar expert. There is already an oil technologist in the department who can give advice on the chemical and engineering aspects of the oil and allied industries. As regards glass, it is not likely that a person can be found who will combine in himself the necessary qualifications to be able to deal with all the problems of the industry ; it will, therefore be necessary to appoint various experts in succession who may tackle its different phases. Messrs. Shah and Duke held that the department should also have a leather expert (*vide* Appendix I). In addition to these experts for specific industries, there should be on the staff of the department an industrial engineer who can deal with problems of industrial engineering and a commercial expert for tackling the commercial aspects of industries in relation to those which do not fall within the scope of the other experts. These two officers may do other work also and perform the functions of Deputy Directors.

54. As regards other industries, it is possible to utilize the services of the heads of the various industrial institutions, for advice and guidance to a certain extent. It will not be possible for them to work like regular wholtime experts ; but they may be called upon to perform somewhat similar functions and work as superintendents of certain specified industries in addition to carrying on their instructional work. They should be assigned such administrative functions as can be suitably delegated to them, and should tour about and supervise subordinate institutions on their technical side and visit the centres of the industries concerned, so as to remain in close touch with them and their requirements.

E—Commercial Intelligence

55. One of the important duties of each expert should be to compile or help in the compilation of technical, industrial and commercial intelligence relating to the industry in his charge and to pass it on to those engaged, or likely to engage, in that industry. The Department receives numerous industrial and commercial enquiries but it is not always in a position to answer them properly. In particular, such work should comprise :

(a) the sources, actual as well as potential, of raw materials, their prices and other incidental expenses, e.g., cost of transport ;

(b) the names of makers of machinery, its suitability for various purposes, prices and comparative working-costs in relation to efficiency ;

(c) a study of actual as well as potential markets for the products ;

(d) a study of the movement of commodities and the agencies and channels through which it takes place ;

(e) the names of the places where articles are consumed, the retail prices paid by consumers, and a study of the changes required to suit them to the tastes and paying capacity of customers.

56. The industrial surveys, which took place in 1923-24, were only a first step towards a full survey. It was then contemplated that these territorial surveys would be followed up with intensive studies of each industry. It has not, however, been found possible to undertake this survey and even the territorial surveys have got out of date. Monographs dealing with certain industries were prepared about a generation ago ; if these are revised and brought up to date, they should prove useful. We suggest that the territorial surveys should be brought and kept upto date and that the department should build up detailed monographs in the first instance for those industries which are selected for concentrated intensive development. In addition a survey of consumption, i.e. of the markets for the products of this Province—both in India and abroad—should be undertaken ; so that it may be known where the articles produced are being sold and at what price.

Conclusions

57. The industrial development of the province can be fostered in various ways, but the resources of the department are limited and it cannot arrange to give adequate assistance in all possible forms to all industries. It should, therefore, select three industries, viz., sugar, oil, and glass, appoint an expert for each and try to develop them intensively in every way possible. Other industries should also be helped as far as practicable, but special attention should be paid to the marketing of the products of cottage industrialists, giving them expert advice and carrying on experimental and research work. It is essential for this purpose to have a survey of the commercial possibilities of different cottage industries and to supply commercial intelligence to those in business.

CHAPTER III

MARKETING

Introductory.

58. The main problem in front of all industries at present is to find a market for their products. Manufacturers are handicapped because they usually have but imperfect information as to what consumers really need and appreciate. It is therefore necessary to survey and study existing markets and ascertain what kinds of goods are or are likely to be required by consumers and to what extent they are purchased by them in different places. It is, however, not sufficient merely to know what the market needs. The production of good and cheap articles of the type required has to be supplemented by organization for pushing sales by canvassing, advertisement, propaganda, etc., so as to bring the quality types suitability, price and other relevant details to the notice of consumers. In the case of articles produced by cottage workers, it is further necessary to ensure that consumers will be able to get the articles they want and will not be disappointed as regards their quality, price, etc.

Difference in the problems of organized and of cottage industries.

59. Organized industries can to some extent afford to study the market, to standardize production and arrange for prompt supply and to push sales. But they also have their problems, although these are different from those of cottage industrialists. The latter are mostly illiterate, poor and unorganized. As a rule, they are not in close touch with the changing requirements of consumers. They tend to become traditional and conventional and to continue to manufacture according to time-worn designs as their fathers and grand-fathers did and trust to luck to find a sale for their products ; they cannot always be relied upon to manufacture up to specification, being hampered partly by incapacity and partly by dishonesty, they do not know where to sell their goods to get the best terms. Owing to their poverty, they have to sell out as soon as possible to the local dealers who often exploit them. The latter, however, do perform some useful and at present even indispensable services ; in most cases they finance the workers and stock the articles for sale after buying them up outright ; they sometimes indicate changes in designs and patterns and penalise bad workmanship by paying less. But, generally speaking, they charge a high price for their services. They are themselves largely ignorant and do not quite know what the market wants,

they have no means for advertising and getting into touch with distant markets and their purchases are somewhat in the nature of a gamble. The result is that they try to safeguard themselves against losses by cutting down the prices they pay ; this in turn practically compels the cottage workers to resort to malpractices to eke out a living for themselves ; thus the standard of article produced deteriorates and the industry declines.

60. This brief survey shows that in the case of cottage industries, the problem of the sale of the articles produced at a reasonable price is of very great importance and mere improvements in the technique of manufacture will not suffice. But sale and production are closely interlinked, and sales cannot be developed unless production is also organized and, where possible, standardized ; there is a serious risk of failure if either side of the work does not receive adequate attention. It has at the same time to be realized that while some degree of standardization is possible in the case of ordinary articles made by cottage workers, it is difficult if not impossible to standardize all, especially artistic, articles ; nor is too much uniformity desirable for the latter. Moreover, broadly speaking, only the artistic products can aspire to cultivate overseas markets. The problems in connexion with the sale of artistic goods are thus different in many ways from those of ordinary articles of every day requirement.

*As also of
artware
and non-
artware
cottage
industries.*

61. It would, therefore, appear to be more convenient to consider the marketing problems of industrial products in three sections--

*Treatment
of the
subject.*

- (A) artistic goods produced on cottage lines ;
- (B) ordinary products of cottage industries, and
- (C) products of organized industries --major and minor.

A—Artware

62. The question of the sale of artware produced by cottage workers in the United Provinces is closely interlinked with that of the Arts and Crafts Emporium as at present constituted. This institution has passed through many stages, various policies have been tried and tested and each change of policy or system of work has been based on actual previous experience. It would, therefore, be an advantage to trace the history of this institution in some detail to see what difficulties have been encountered and how efforts have been made to surmount them.

63. A depot was started in Cawnpore in 1915; it was intended to be a recognized centre where the products of cottage industries could be collected and made available to purchasers, and to act as an accredited agency for orders where a foreign buyer might with some assurance register his order and expect that it would be honestly dealt with. Actually it was not successful and it was held that the chief causes of failure were that it was run on too general lines, that it did not make adequate arrangements for establishing a market in foreign countries and that it did not furnish sufficient financial facilities to the manufacturer.

64. Accordingly in 1921 it was transferred to Lucknow, designated as the Arts and Crafts Emporium and placed in charge of Mr. Nat Heard, Principal of the School of Arts and Crafts. He organized it *de novo*, confining its activities to artware, and tried to develop foreign trade on the basis of an unrecognized monopoly for the Emporium. This yielded good results at first. Suppliers got fairly steady orders and promising or proved designs. Buyers, especially those overseas, could rely on the quality and finish of the goods they were buying. Connexions were gradually built up. In essence, this is practically the same system as was, and in some cases is, being even now followed by the Gulzarbagh Institute, Patna (a Bihar Government concern) and by several private firms, as for instance, the Kailash Carpet Factory at Agra and Messrs. Hill & Co. at Mirzapur for carpets, and the Cawnpore Dyeing and Cloth Printing Co., Cawnpore, for Farrukhabad curtains and other prints. When, however, the question of India's participation in the Wembley Exhibition was on the anvil, the claims of private enterprise had to be considered, and it was decided that though the Emporium should participate, it should not be the sole exhibitor or marketing agent of the artistic handicrafts of the United Provinces and that manufacturers and traders should be allowed to exhibit and market them independently. The results were unfavourable not only to the Emporium but also to the United Provinces trade and handicrafts. Private enterprise took only a short-sighted view and looked to immediate business and quick and large profits. Quality was sacrificed and the Emporium tradition went by the board; the name and the dependability also went. Unfortunately this was followed by the discovery of irregularities and embezzlements in the

Emporium accounts and after an enquiry Mr. Heard and some of the Emporium staff had to go in 1924. Though the policy had a promising beginning, the later developments left an unhappy legacy and an evil memory.

65. This led to the adoption of the policy that the Emporium should be run as a business concern and should "pay its own way". It was removed from the Arts and Crafts School and located in the business quarter of Lucknow ; later on, the control of the principal of the Arts School was given up and a separate Business Manager appointed. The Burn Committee in 1925 recommended that the business should be divided into three branches, viz.

(a) agency work for manufacturers who would deposit samples at the Emporium at confidential rates for wholesale consignments,

(b) sale, on a commission basis, of articles on behalf of manufacturers, and

(c) purchase of specially selected products and their retail sale.

But the Emporium could get no agency work or obtain articles for sale on a commission basis. It tried to work as a small curio retail shop, but it soon became clear that, owing to the heavy overhead expenses, partly necessitated by the propagandist work it had to do (though this had no place in the programme then prescribed by Government), it could not possibly pay its way.

66. Moreover, it was felt that Government should not engage in business merely to make a profit and should help cottage industries by advertizing and publicity and by financing purchases with a view to sale—not for private profit but with the idea of giving state-aid to unorganized cottage workers. Accordingly, a new policy was enunciated in 1929 that the Emporium should be partly a business concern and partly a publicity-propaganda agency and should be subsidized by Government to the extent of Rs.20,000 a year. Retail and wholesale trade were permitted and the Business Manager was given a direct personal monetary interest in the volume and value of the trade handled by or through the Emporium. The export trade was intended to be the main object and the retail business only a subsidiary function, which should

be carried out only till supplies could be properly organized. The aim was to carry no stocks; the Emporium was to work as far as possible on a "sample and catalogue" basis, buying against orders received, and to acquire a reputation for selling articles of good workmanship and design at a fair price and with promptitude and fair dealing. The difficulty of working without stocks was realized, but the idea of a subsidized stockist was not accepted and it was decided that the minimum stocks required should be carried.

67. This policy has been in force ever since. The results of the various systems may be seen from the following table which shows the net cost of the Emporium, i.e., the actual expenditure minus the trading profits, and the value of the sales made by it at Lucknow, at its various agencies and abroad :

Turnover by, and expenditure on, the Emporium.

Year	Expenditure	Turnover by sales			Sales in foreign market (direct or through agencies)	Total	Percentage ratio of expenditure	
		Lucknow	Through branches and agencies in India				To the turnover or sales at Lucknow, i.e. column 2 column 3	To total turnover, i.e. column 2 column 7
			No. of branches and agencies	Sales				
1	2	3	4	5	6	7	8	9
	<i>Total Actual expenditure (a)</i>							
	Rs.	Rs.		Rs.	Rs.	Rs.		
1924-25	10,926	24,443	Nil	Nil	3,325	27,768	44·6	39·3
1925-26	12,707	9,174	Nil	Nil	11,898	21,072	138·5	60·3
1926-27	15,845	17,531	Nil	Nil	2,721	20,252	90·3	78·2
1927-28	15,193	8,611	Nil	Nil	4,090	12,701	176·4	119·4
	<i>Net expenditure (a).</i>							
1928-29	5,176	10,467	Nil	Nil	14,306	24,773	49·4	20·9
1929-30	4,866	23,633	Nil	Nil	4,714	28,347	20·6	17·2
1930-31	6,058	23,996	(b)4	629	2,935	26,931	25·2	22·5
1931-32	5,385	(c)18,463	7	7,774	3,954	50,741	29·2	10·6
				(d)29,550				
1932-33	4,997	24,754	12	23,380	806	48,940	20·2	10·2

NOTE.—(a) The figures of expenditure for the years 1924-25—1927-28 are for the total expenditure. Those for the subsequent years represent the net expenditure after deducting the trading profits. No account has been taken of depreciation in the value of stock.

(b) The system of branches and agencies was inaugurated in 1930-31.

(c) During the hot weather the Emporium remained closed at Lucknow but was opened at Mussoori.

(d) For sales at Mussoorie.

It will be seen that though foreign sales have declined in value during the past few years, the total business done is slowly increasing, because of the branches and agencies which have been established.

68. In other words, the Emporium as a selling organization has, in spite of the widespread depression in trade, not only maintained its trading position but extended its total business. It is also finding a larger market for artware products, thus conferring benefits on the cottage workers. On the other hand, it has not been able to effect any noticeable improvements in cottage industries, has failed to introduce new designs and has not developed foreign markets, although this was intended to be its primary function. It has also been urged that in effect it has reduced itself to the position of a retail shop, mostly for curios and artware, maintained by Government. The ratio of expenditure to turnover has been criticized as excessive, and the question about the state competing with private enterprise in this direction has also been raised.

69. The points for consideration, therefore, are whether the underlying policy of the Emporium is sound or needs alteration ; whether it is being run along right lines ; what steps should be taken for the development of trade, both foreign and Indian, and how it should be organized. These problems will be considered under the following heads :

- (a) Policy,
- (b) System,
- (c) Indian trade,
- (d) Foreign trade, and
- (e) Organization.

70. The present policy is that the Emporium should be run as a state-owned concern, with a special grant from Government. This is criticized on the ground that it has deteriorated into a mere retail shop getting a big subsidy from Government and that private enterprise could do the work at much less cost to the state. Now, the functions of the Emporium are three-fold ; (i) it has to act as a sort of " commercial museum," introducing new designs and carrying on publicity and propaganda, so as to bring the articles made to the notice of consumers ; (ii) it must find or create markets, both wholesale and retail, for artware goods made by cottage workers, and (iii) it must organize the latter so

Policy.

as to get them to execute orders honestly and in accordance with approved standards and designs. At the same time it must be borne in mind that it is not a profit-making concern but one designed to better the lot of cottage workers. We consider that these functions, some of which are of an altruistic nature, cannot be carried on by an organization which is not state-owned. The Emporium is not intended to be a mere selling business and must afford facilities for publicity and propaganda and maintain a living connexion between the manufacturers and the consumers, acting in *their* interests and not in its own. Such work cannot be done by a private or subsidized institution.

71. An alternative that was suggested to us aimed at bifurcating the work. It was proposed that Government should only be responsible for the philanthropic part of the work and should run a "commercial museum" for the purpose. This institution would only stock samples on the basis of which orders might be secured. In view of the fact, however, that unorganized cottage workers would not be able to comply with orders promptly or at short notice, and in order to avoid the resulting loss of business, the maintenance of some stocks was considered indispensable. To meet that difficulty it was suggested that this strictly commercial part of the work might be transferred to a private-owned but state-subsidized business concern which might keep stocks and do the selling work, receiving a small subsidy from Government for the purpose. Thus the "museum" would obtain orders and pass them on to the subsidized stockists, who would supply the articles required, if in stock, or get them made.

72. We doubt, however, if the work would be effectively carried on in this way, as it presupposes complete co-ordination between the "museum" and the private concern. Moreover, the "museum" will find it very difficult to work on a basis of samples in the case of artware, as the industry is in an undeveloped stage and these articles are not standardized. A large number of samples will have to be kept in any case and they will have to be sold off from time to time and replaced by new ones, if the museum is to fulfil its proper function; in other words, it cannot avoid sales.

Again, there are likely to be difficulties if a new design is introduced by one institution and the articles made accordingly are to be supplied to another; after all, what the cottage worker wants is not a new design or shape for its own sake, but the ability to sell what he makes, and it is the person who places orders with him to whom he will turn and not to the museum for help and guidance. Moreover, the cottage workers need to be properly trained; a subsidized stockist will look to his own profits and not to the training of the cottage industrialists or the need for maintaining a certain standard of quality and workmanship. A shop owned and run by Government would be able to set up a standard, both as regards price and quality, to which private enterprise can conform. We consider that it will be an advantage if all these functions are carried on by a single organization, which can only be a State-owned Emporium and that, therefore, the policy in respect laid down in 29 need not be changed; in other words, the Emporium should be partly an agency for publicity and propaganda receiving a subsidy from government and partly a business concern, but the development of the export trade should be its main object and the retail business only a subsidiary function; care should also be taken to see that it does not become a mere retail shop and attends to its other and more important functions.

73. While the policy guiding the maintenance of the Emporium appears to be sound, the system on which it is actually being worked needs to be improved. In particular, the Emporium has not been able to introduce new designs and shapes which would appeal to consumers or to give sufficient practical guidance to manufacturers in this respect. For instance, brass workers still continue to make only trays and vases; no attempt has been made to introduce the manufacture of other kinds of articles, or even to prepare them in more attractive shapes and improved designs; ash trays are still made in marble, regardless of the fact that ashes leave a stain thereon; beautiful work is often spoilt by lack of finish, e.g. big nails, bad hinges, etc. It must be the business of the Emporium to bring such defects to the notice of the manufacturers and to pass on new ideas to them.

System.

74. Again, it is to be regretted that the School of Arts and Crafts, which is intended to be a seminary of design, should have done so little to help in the introduction of new designs with commercial possibilities. The object of the designs evolved by the School appears to be to try and bring about a change in public taste. The Emporium, however, must aim at supplying designs acceptable to the public, both in India and abroad, so that the volume of business handled by or through it or with its assistance, may grow to the maximum extent. The Business Manager is not a designer of artware; he only understands these goods as a salesman. We recommend that the Superintending Craftsman of the School should work as an Adviser of Designs to the Emporium and be held responsible for their introduction and improvement; it may be impressed on him that this should be taken as among the more important legitimate duties attached to his post. He should be given an assistant to serve as a craftsman designer, who would prepare designs and help in their execution. We do not consider it necessary to import a special designer, in order to introduce designs which would be popular in foreign markets, as such a person would be unduly inclined to westernize Indian designs; but the needs of the trade and the present and probable tastes and tendencies of consumers must be ascertained, and designs adapted and improved accordingly.

75. The introduction of new shapes and designs must be supplemented by some arrangements for ensuring that the articles are manufactured accordingly; in other words there must be some agency for seeing that orders are properly executed. The Emporium has to depend for this purpose on local dealers and middle men who supply the necessary raw materials and finance to the cottage workers, see that they manufacture in accordance with the designs required, and then sell the goods to the Emporium; naturally they charge their own profits and have a tendency to increase them by paying as low a price as possible to the cottage workers. Again, they try to short-circuit the Emporium by supplying articles direct to consumers and thereby set up cut-throat competition among themselves, which leads to a gradual deterioration in the quality of the articles made and consequent damage to the industry; this is what happened at and

after Wembley. The establishment by the State of branches of the Emporium at manufacturing centres is not considered feasible, chiefly on account of the expense. Co-operative societies should, however, be started for the purpose where local and other conditions permit and subsidized to some extent by the State. Until these are developed, there is no alternative to selecting a few reliable local men and placing orders through them, on the definite understanding that they must arrange for their proper execution and deal fairly with the actual manufacturers. The touring staff of the department should see that this is being done.

76. The question has been raised as to whether the Emporium should put its own clients into direct touch with the dealers or try to preserve a sort of monopoly. We consider that this is a matter which may well be left to the discretion of the department. The interests of the industry as a whole should be borne in mind; and if it is found that it would be to the advantage of both the consumer and the cottage worker, there is no reason why the two should not be put into direct touch with each other. Each case must be decided on its merits in the light of the reliability and capacity of the cottage industrialists and the local dealers concerned and the nature of the client or the consumer; greater caution will have to be exercised in this respect in the case of the foreign, than of the internal Indian, trade.

*Indian
Trade.*

77. In order to develop the trade in artware in India the Emporium has been advertising in a number of provincial papers and sending out catalogues. Agencies have been established at Darjeeling, Calcutta, Mussoorie and other places. Goods from the Emporium are being exhibited free of charge at the museums at Allahabad, Ahmedabad, and Poona, and some sales are also taking place there. Arrangements have been made with the provincial depots at Lahore and Patna to work as selling agents of the Emporium, the latter being their sole buying agency for this class of goods. It will thus be seen that a certain amount of useful work has already been done; but more is needed if the Indian trade in artware is to be properly developed. In particular, more agencies are required for the important towns. In these cases, as the selling of goods is the primary if not the sole object, it is not necessary that the business should be carried on by Government themselves. But business in new centres may best

be developed by first opening a shop as a branch of the Emporium, managed by one of its employees. After working it for a year or two, and when it has been thoroughly tried out and established, efforts should be made to hand it over to a private agency, under a suitable system of subsidy, as has been done at Mussoorie. Such a system will make it easier to get reliable local persons to take over the shop as a going concern and will also permit of the Emporium finding out the exact requirements of the market. The trade in art goods is so limited, that unless its possibilities are proved by means of a demonstration at the expense of the Government, ordinary business men might not find it sufficiently attractive and might hesitate to take it up.

Foreign Trade.

78. The development of Indian trade alone will, however, not suffice. It is essential to make strenuous efforts to revive the foreign trade which of late has fallen off so considerably. All that has been done so far in this connexion is to issue a few advertisements in various foreign magazines, to send out illustrated catalogues showing prices in dollars, sterling and rupees, to forward exhibits to the Indian Trade Publicity Officer and take part in a few exhibitions overseas. No organized effort has been made along right lines to develop this trade. The present arrangements for publicity are insufficient to secure a market for provincial artware in foreign countries. Occasional participation in exhibitions is not enough and arrangements must be made for establishing a more lasting and intimate contact with foreign markets.

79. The first question that arises in this connexion, however, is whether in view of the prevailing economic depression there is any scope for the development of foreign trade. In April, 1932, the Advisory Committee of the Emporium expressed the view that "at present and apparently for some time to come it will not be advisable for the Emporium either to concentrate on building up a trade abroad or to devote any large portion of its energies to this pursuit, as conditions abroad are adverse, tariffs prohibitory, exchange in many cases very disadvantageous and sales at a standstill." It is true that the demand for artware goods has been considerably reduced ; but inquiries in England by Mr. Duke when he was on leave there and from

the Indian Trade Publicity Officer go to show that there is still considerable scope for trade, provided the articles are made in proper shapes and attractive designs and are supplied at suitable prices, and an organized effort is made to develop the work by establishing one or more local agencies.

80. We suggest that, to start with, a suitable agency should be established in London. It would be more convenient if a number of neighbouring provinces were to combine to maintain such an agency. A scheme for such work based on suggestions received from the Indian Trade Commissioner is enclosed as Appendix III. We recommend that some such scheme may be given a trial as an experimental measure for a period of, say, three years. Adequate security should be taken from the firm entrusted with the work, and due care and caution exercised when sending out articles on a consignment basis, the maximum value of the goods which may be so sent being fixed beforehand. If such an agency is established, it should obtain its supplies of articles from the United Provinces through the Emporium only, and should inform the latter of the shapes and designs required. It would only do wholesale work; the cost of maintaining a retail shop might prove prohibitive, and retail sale might also lead to complaints of interference in trade by retail dealers in London. This wholesale agency will adopt such methods of advertisement as it considers suitable for the trade. But its efforts must be supplemented by the Emporium continuing and expanding its present publicity and propaganda activities, by the issue of catalogues, bulletins and leaflets, by advertising in trade journals and also in the papers and booklets which are seen by tourists; by putting up show cases of samples on passenger ships, in big hotels, at railway stations, in the offices of tourist companies, etc.—provided, of course, this is permitted; and by continuing to take part in exhibitions.

81. These efforts will, however, not suffice unless the articles are felt to be reasonably worth the price charged for them. It is true that artware products are not governed by ordinary rules and often fetch fancy prices. But present market conditions demand that the prices should not be too high. According to the

existing pricing system prescribed for the Emporium, the prices charged in foreign markets are substantially higher than the cost price in India. When trade is in a depressed state, a high level of prices makes business almost impossible. It is, therefore, suggested that foreign wholesale buyers should be charged only the actual price for the goods paid by the Emporium, plus out-of-pocket expenses, such as packing charges, freight, insurance, etc. and that a very small amount should be charged for profits, salary of staff, overhead charges, etc. This concession should be brought specially to the notice of foreign buyers. At the same time the Emporium should make a special point of sending out only goods of a high standard, so that its hall mark may serve as a guarantee of quality and in course of time may come to be recognized as such.

82. We believe that action along these lines will help in the development of trade abroad. But trade cannot be properly developed without personal contact, and it will help business materially if an attempt is made to introduce the goods in other countries by personal interviews. For this purpose we recommend that an officer should be sent on a tour to the United Kingdom and the Continent during the next summer and, later if necessary, to Canada, the United States of America, Australia, etc. The itinerary of the tour should be arranged in consultation with the High Commissioner; it will be an advantage if it can be made to fit in with important exhibitions and fairs. This officer should take with him representative sets of samples and catalogues. He should make a careful study of the important markets, find out the special requirements of each and the lines of goods which are most likely to be in demand there. He should establish contacts with important organizations and merchants who may be able to act later as correspondents for regularly supplying market reports and other information of interest to the trade in India; the Emporium may arrange to supply them with similar reports in return. He should look for reliable and influential parties who may be suitable for work as selling agents on behalf of the Emporium and obtain information as to the lines on which the agency business can be developed, leaving the exact terms of each agency to be settled later.

83. The existing organization of the Emporium may continue more or less as it is, but the increased activities proposed will necessitate some additions to the staff. The development of foreign and Indian trade along the lines suggested will mean that the Business Manager will have to do a great deal of touring. He will require a capable assistant who can be left in charge during his absence in addition to a craftsman designer. The advisability of giving the staff a small commission on sales may also be considered. Further, the Emporium will have to appoint some men to work as part-time commercial travellers on its behalf and pay them some allowances. When temporary branches are started, it will be necessary to appoint for each such branch one branch manager and one or more assistants and peons. Increased provision will also be required for contingencies, commercial operations, etc. A provisional revised budget of the Emporium is given in Table I of Appendix XIV.

Organization.

B—Non-art products of cottage industries

84. So far, practically nothing has been done to help in the sale of non-art goods produced by cottage industrialists, although there are a number of such industries with appreciable potentialities which are in urgent need of state assistance with regard to marketing. By way of illustration may be mentioned the lock and hardware, the Moradabad plate and the brass-ware industries. By far the most important, however, is the handloom industry. There are a number of lines in which no question of competition between the mills and the handloom weavers arises: certain designs and patterns can be made and marketed by the handloom weavers more cheaply in the long run than by the mills, e.g. covers, curtains and table cloths. Cottage-workers should be taught to specialize in the manufacture of articles which do not compete with factory products. These should then be standardized as far as possible, and a systematic effort made to evolve designs and patterns that are popular in the market.

85. There is not likely to be much of an export market for these articles, at least at present, and efforts will have to be concentrated on the development of the internal market. For this purpose it is necessary to bring to the notice of the public the nature of the articles made by cottage workers. They should be advertised

A Commercial Museum.

widely, catalogues should be issued where possible, and the articles popularized at exhibitions. This work obviously cannot be done by the cottage workers themselves and some sort of government organization is necessary to do it on their behalf. Such an organization should in addition be able to canvass orders on behalf of the cottage workers, and must, therefore, arrange to keep samples of standardized articles and bring them to the notice of consumers, so that the public may know what sort of goods are available and where. In other words, there should be a "commercial museum" run by Government to perform these functions on behalf of the cottage workers, acting like an altruistic wholesale agent on their behalf. As the articles will be standardized it will not be necessary for this organization to take up sales; it will suffice in their case to bring consumers into direct touch with the makers of these standardized articles. Moreover, the value of the products of handloom weavers alone runs into several lakhs and it would not be feasible or possible for Government to maintain an organization like the Emporium for helping more directly in the sale of the goods made. This organization may, however, be run either separately or in conjunction with the Emporium.

*Sole
buying
agents.*

85. These efforts alone will meet with little success unless they are supplemented by an organization which would itself arrange to purchase the goods, or a portion thereof, for disposal. The weavers and other cottage workers are too poor to be able to hold on to their stocks; they must sell their products almost as soon as they are made, so that they may get money to manufacture more articles. Experiments have been tried in the Co-operative Department to induce them to deposit their manufactures with a sales organization on a sale and commission basis, but have not been successful mainly because of their need for immediate cash or financial accommodation. A Government institution can not carry stock of this kind. The alternative is to find reliable firms each of which would undertake to purchase a particular class or type of articles as soon as they are made and then market them. We suggest that if any such firm is forthcoming, it might, in the first instance, be given a suitable subsidy on a sliding scale depending on the value of the goods which it purchases.

87. The buying agents would be under an obligation to purchase all the goods produced—provided, of course, they are up to standard—and not to make purchases of similar articles from others. The rates at which the finished goods will be purchased by them will have to be settled beforehand; arrangements for the purchase of the raw material required will have to be made at the same time, so that the manufacturers may not be adversely affected by fluctuations in the price of the raw materials used. Steps will have to be taken to ensure that the goods produced are not sold to any other agency. An alternative is that the articles produced may be purchased by the buying agents, not at a price fixed in advance, but at a price which bears a definite relation to the ruling price of the yarn used. To start with, we suggest that a buying agent should be appointed for textiles; after gaining experience of the working of this system in the case of the products of handloom weavers, similar arrangements can be made for other cottage industries. As a sole buying agent for the products of all the weavers scattered over the province presupposes a strong organization of them, we recommend that, to begin with, this sole buying agent should confine his activities to articles made by co-operative societies of cottage weavers, which number about 40. These can be trained under proper guidance and supervision to manufacture articles up to a certain standard and in their case the price to be paid for the goods can be settled more easily and with greater fairness to both sides than in the case of unorganized weavers; the educative and propagandist value of the work done will thus be greater. Thereafter sole-buying agents may be appointed for dealing with articles produced by other workers.

C—The products of organized industries

88. The problem in connexion with the marketing of the products of organized industries differs from that of the disposal of the articles made by cottage workers in that standardization is much easier, and quality can, generally speaking, be guaranteed. But though these industries are organized for purposes of production, they are not always able to secure constant markets for their products. The larger factories are able to get over this difficulty to some extent as they can afford to carry stocks, hold up sales, or work on a commission

basis as may be required ; and generally they are able to have their own sole selling agents in most of the principal towns. But the problem of bringing the articles made in the United Provinces to the notice of consumers generally remains, especially in the case of the smaller concerns. These products are no doubt, stocked by dealers in at least the more important towns, but a buyer does not always know where to get them.

89. What appears to be required, therefore, is an organization which would be able to bring U. P. products prominently to the notice of the consumers at large. For this purpose there should be a net work of what may be called " U. P. Stores " in most of the large towns, where a buyer could go and confidently rely on being able to obtain genuine U. P. made goods. These " Stores " may work on a commission basis and should only sell articles made in the United Provinces bearing a guarantee of quality and place of manufacture ; they should aim at stocking primarily articles of every day need so that they may be able to supply the normal requirements of local consumers. These " Stores " should be set up or recognized by a central organization which would treat them as its own agencies and supervise and control them. It will have to ensure that its agents are absolutely reliable ; otherwise manufacturers would hesitate to deal with them. Large factories which wish to utilize the services of this organization and its agents should be at liberty to do so. Mr. Sinha is, however, of the opinion that this organization should not deal with the products of large-scale textile factories. It must maintain a directory so that when an enquiry is received as to where a particular article of U. P. manufacture can be obtained, it may be able to supply the information at once. In addition to the establishment of fixed sale agencies in the larger towns it should employ commercial travellers who may carry samples and canvass orders in smaller places. This central organization may be known as the " United Provinces Marketing Association."

90. An institution of this kind must be non-official in character, though it will have to be aided by the State. It may be a joint-stock limited-liability concern with a subsidized capital of say 5 lakhs, Government taking a fair proportion of the shares in order to create

confidence in its reliability and having adequate representation on the directorate. Government may also assist in making enquiries about the reliability of the individuals or firms to whom agencies are to be given and of the commercial travellers it may have to appoint. Further, Government may, in the beginning, make suitable grants to meet the initial expense of preparing catalogues, issuing advertisements, etc. This Association would be a useful adjunct to the Department of Industries. We recommend that a scheme along some such lines should be worked out in detail.

D—Exhibitions

91. Participation in exhibitions should be of great advantage for all industries. The department has been participating in and assisting exhibitions and fairs to a considerable extent, and such participation appears to have been generally appreciated. We would, however, like to point out that, if these exhibitions are to have a lasting effect, it is essential that the work done at an exhibition must be followed up. A report should be prepared about each exhibition summarising the results achieved from the industrial point of view; the popularity of the designs exhibited and the tastes and tendencies of the consumers as ascertained at these exhibitions should be noted and the information passed on to the Emporium and any other organization which is in touch with the manufacturers. Again, the aim of participation in an exhibition should not be merely to sell a few articles or secure a few orders, but to establish permanent trade connexions by getting into touch with potential buyers and making arrangements for the future. With a view to avoid the danger of the market being spoilt by the exhibition of trashy articles or by sales either at cut-throat or unduly high prices, it is also essential to ensure that the department does not help manufacturers and dealers to obtain stall space at these exhibitions, without satisfying itself that they can be relied on to exhibit only articles of good quality and at fair prices.

92. These remarks apply still more strongly to overseas exhibitions and fairs. The selection of the classes of articles to be exhibited may have to be based on considerations not necessarily the same as in the case of fairs and exhibitions in India. But the need for following up the cues obtained and for establishing

and maintaining permanent connexions is even greater. We need not dilate on the advantages of co-operating with the High Commissioner's office and with other provinces so as to combine economy with effective results.

A Permanent Industries Fair.

93. In this connexion we suggest that a permanent exhibition which may be called the Industries Fair should be established for the purpose of exhibiting samples of articles manufactured in the United Provinces. There appears to be need for a place where one might go and see a sample of the different kinds of articles produced in the province. It is hoped that the advertising value of such an organization will be recognized by the manufacturers who will supply samples free of cost but in the first instance some samples may have to be purchased. The cost would be small. This Industries Fair will be in the nature of a museum or exhibition, and quite different in its scope from the Emporium and the "Commercial Museum" which will be agencies for the marketing of the products of minor and cottage industries.

94. We may now sum up our proposals under this chapter. We attach very great importance to the proper development of marketing facilities especially for cottage industries. It seems to us that three different types of organization are required. For artware goods there should be a state-owned Emporium, working partly as a business concern, and partly with altruistic motives for the benefit of the cottage workers. It must devote special attention to the introduction of new shapes and designs and to seeing that articles are made according to specifications ; it must employ reliable local agents for the latter, until the work can be taken over by co-operative societies. It must carry on propaganda by advertising widely, publishing directories, catalogues, bulletins, etc., exhibiting samples in show cases at railway stations, passenger ships, tourist offices, hotels, etc., by employing commercial travellers, by taking part in exhibitions, etc. It should pay special attention to the development of foreign trade, and should for this purpose appoint suitable agents there, lower its prices and establish personal contacts with local traders. While special attention should be paid to developing foreign business, Indian trade should not be neglected ; in order to develop it, branches

should be established at important centres all over India, which, after a year or two, may be handed over to private enterprise. For the marketing of the products of other industries which can to some extent be standardised, especially handloom textiles, we recommend that a commercial museum should be started, either in conjunction with the Emporium or otherwise, and a sole buying agency established for taking over in the first instance all the products of co-operative societies of cottage weavers and subsidised by Government. After gaining a little experience, this system of work may be extended to other industries. We have also outlined proposals for the establishment of a joint-stock corporation, which may be called the United Provinces Marketing Association, to tackle the problem of marketing the products of organized industries. This organization may be state-aided. Its main function will be to maintain a net-work of agencies, dealing in exclusively U. P. made articles on a commission basis, and employing commercial travellers for work in the smaller towns. This scheme should, however, be worked out in detail. As regards exhibitions we have suggested that particular attention should be paid to see that the experience and knowledge gained at them is not lost, and that participation especially in overseas exhibitions leads to the establishment of permanent trade connexions.

CHAPTER IV

UTILIZATION OF HYDRO-ELECTRIC POWER

*Hydel
scheme.*

95. Mr. Stampe has kindly furnished the Committee with a note, which is reproduced as Appendix II to this report, giving details of the Ganges Canal hydro-electric works completed up to date and also outlining the prospects of future expansion of the grid scheme, which is expected to lead to the further cheapening of hydro-electric power especially for agricultural purposes. It will be seen from this note that the recent harnessing of the water power on the Ganges Canal falls has enabled the western parts of these provinces—comprising seven complete revenue districts, viz., Saharanpur, Muzaffarnagar, Meerut, Bulandshahr, Aligarh, Moradabad and Bijnor, with an area of 11,000 square miles—to derive the benefits of cheap electric energy for domestic as well as for industrial and agricultural purposes. Only four out of ten falls on this canal have so far been electrified, yielding 8,900 kilowatts or, say, 11,000 H. P. For the distribution of this energy a net work of 960 miles of high tension lines and 106 sub-stations have been constructed in addition to 120 miles of local farm branch lines to supply power to 110 rural sub-stations. In the area covered by the grid system 69 towns with a population of 5,000 and over have been energised.

*Tariff
rates for
domestic
use.*

96. The Irrigation Department supplies electrical power in bulk to licensees who distribute it under certain conditions of supply. The retail rate for lights and fans is 5 annas 6 pies per unit as compared with 6 annas and 7 annas per unit charged in most of the non-grid electrified towns. This rate applies to all the towns and villages in the grid area irrespective of their size and location, and but for this scheme most of these places would, in all probability, have had to go without electricity for several decades.

*Tariff for
industrial
purposes.*

97. For industrial purposes power is supplied on three different tariffs. Originally a flat rate of 1 anna 6 pies per unit was charged. Two years ago the Irrigation Department offered, as an alternative, a sliding-scale industrial tariff based on the relation of units consumed to horse power connected. Its introduction has enabled several factories to be connected, as for instance the Strawboard Factory at Saharanpur,

to which 170 horse power is retailed at a rate of 5·1 pies per unit, and oil extracting mills at Hapur and Hathras, to which energy is being sold at approximately 7·2 pies per unit. As a third alternative a two-part industrial tariff has recently been introduced, according to which a monthly charge of Rs.6 per H. P. connected is made *plus* a flat rate of 6 pies per unit. This tariff enables a seasonal consumer to avail himself of reduced rates on the consumption of a few months instead of that of the whole year. We understand that under this tariff a rice hulling mill, working about 16 hours a day during the season, can get power at about 9·8 pies per unit; a sugar centrifugal and crusher, working the same number of hours per day, at the same rate; a cotton ginning mill, working about 20 hours a day, at 9·1 pies; and a flour mill, working 10 hours a day, at 12·2 pies; as against 18 pies per unit on the flat rate system.

98. For agricultural purposes energy is supplied at a flat rate of 1 anna per unit or 9 pies per horse power per hour. This rate is said to be as low as any in the world for isolated rural consumers with small installations scattered over a wide area irrespective of the distance from the source of supply. It is on these scattered consumers that the grid scheme confers its greatest benefit, not only for domestic purposes but also for the development of agriculture. This cheap rate is also important from the industrial point of view, as it can lead to the establishment of various cottage and other subsidiary industries such as ginning, oil pressing, hand looms, and manufacture of sugar and manure.

*Tariff
for agri-
cultural
purposes.*

99. The Irrigation Department estimates that the present rates can be further reduced by about 25 per cent. if the six falls on the Ganges Canal which have not yet been harnessed are also developed so as to make additional power to the extent of 38,000 H. P. available, provided the benefits of the reduced production costs are given to the consumers instead of going to the provincial revenues. The advisability of undertaking the electrification of the remaining falls with this object may be considered when the development of load on the grid warrants such a step.

*Reduction
of tariff.*

100. The differential rates introduced by the sliding scale for small and big consumers may be justifiable on strict commercial considerations. But, since the hydro-electric scheme is planned, financed and operated by

*Scope for
further
reduction.*

Government, we consider it advisable that the Irrigation Department should explore the possibilities of narrowing down the difference between the two scales in favour of the small industries such as metal polishing, electroplating, leather and wood working, cotton and wool spinning, hand loom weaving, etc. Government are taking action through the Industries, Co-operative and other departments to encourage small cottage industries of these types, and it would only be carrying this policy a little farther if the hydro-electric branch could see its way to placing them on the same level as the big industries in the matter of power rates. We understand that in many countries e.g., Japan, Switzerland, Germany, France etc., the State pursues a similar policy in relation to electrical energy for cottage industries.

Consumption.

101. That the rural public finds it profitable to use hydro-electric power is borne out by its rapidly increasing consumption in the rural areas. In March, 1931, there were 38 consumers with a connected load of 644 H. P. on 67 miles of branch lines, whilst by March, 1934, 140 consumers with a connected load of 2,500 H. P. will have been connected on 120 miles of lines. In spite of the prevailing depression the consumption in units is expected to be 800,000 during the current year. In urban areas also, the increase that has taken place is considered satisfactory. In March, 1931, the total connected load for 127 small industrial motors was 1,330 H. P. which increased to 3,500 H. P. for 397 motors in 1932 and to 5,400 H. P. for 692 motors in 1933.

Agricultural connexions

102. In the rural areas, power at the one anna per unit, or even a lower, rate should result in the development of certain agricultural processes hitherto beyond the reach of the rural population. The cheapness and flexibility of grid power have already secured a wide extension of commercial irrigation from tube-wells, both private and state-owned; there are at present 25 state tube-wells and 110 private wells which have been electrified yielding 150 cusecs of water; in addition, four river-pumping stations have been established on the Ramganga, Kali and Gangan rivers, which utilize 2,200 H. P. and pump 400 cusecs. Thus the way has been opened for agricultural development, and this should in turn further stimulate the development of both urban and rural industries as well as of irrigation.

103. The principal industries which have so far utilized hydro-electric power are as follows :

*Industrial
con-
nexions*

(a) *Flour mills*—270 miles having a connected load of 2,670 H. P.

(b) *Brass polishing*—22 installations of 99 H. P. in Moradabad and 20 installations of 135 H. P. in Aligarh.

(c) *Cotton ginning*—12 installations of 384 H. P.

(d) *Sugar processing*—104 small crushing plants and centrifugals of 600 H. P. These installations are said to be increasing rapidly. As regards the large steam-driven sugar factories, 7 out of the 9 working in the grid area have installed about 250 H. P. or hydro-power for lighting, pumping and driving centrifugals in the non-crushing season. The possibility of using hydro-power for medium-sized factories is being investigated in an experimental 50-ton vacuum-pan installation in the Bijnor District.

(e) *Manufacture of artificial fertilizers*—The question of utilizing power for this industry, especially in the tube-well areas, is under consideration. It is calculated that current can be supplied for this purpose during the months of July to October at 9 pies per unit.

104. We have in a general way examined the difficulties and obstacles in the way of a rapid utilization of hydro-electric power for industrial purposes.

*Difficul-
ties in the
way of
rapid
utilization
of hydro-
electric
power.*

(a) The main obstacle—that of ignorance and inertia on the part of the more illiterate consumers—has to a large extent been overcome by means of practical demonstrations, show rooms and propaganda carried on by the Irrigation Department through its development division. We feel, however, that the need still exists for further and more intensive propaganda to demonstrate the uses and economics of power for urban industries such as cotton ginning, oil pressing, metal polishing, electroplating, and wood lathes.

(b) Another difficulty which has been mentioned as hindering the development of industrial consumption is the non-availability of suitable machinery. This however is decreasing as several electric firms in India have opened agencies in the grid area for various types of machinery such as flour mills, cotton gins, and sugar centrifugals. The main deficiency is as regards the small cane-crusher and we understand that the Sugar Technologist to the Imperial Council of Agricultural Research is experimenting with certain types

and it is hoped that a fully tested type will be placed on the market in due course.

(c) Yet another difficulty is the lack of suitable "maintenance and repairs" services. We are assured that this has not been experienced to any considerable extent and that repair agencies have already become spontaneously established in the larger towns in the grid area. As in the case of all new enterprises, electrification is creating its own agencies for "supply and service" in relation to electrical machinery, and no special Government or aided organization appears to be necessary for this purpose.

(d) The system of measurement of power by the meter has also been considered to be a difficulty. We are informed, however, that although there were 6,870 consumers' meters operating in the grid area in March, 1933, reports received from the various licensees show that the percentage of complaints against bills computed by meters is negligible. It appears, therefore, that consumers understand the meter system and there is thus no real grievance on this account in the United Provinces.

(e) The complaint of unwillingness on the part of licensees to connect small loads does not appear to be justified, as out of 635 private motor consumers in the grid area 520, or 82 per cent., have installations not exceeding 10 horse power. The low tension distribution lines of the licensees in the towns have, it is said, been laid down more with a view to the development of a large number of minor loads than to the supply of large blocks of power. The position may, however, be watched and surveyed from time to time.

(f) Some of the terms of the licence in favour of distributors do not appear to be quite suitable. Thus, in one case to which our attention has been drawn, the licensees are charging at six annas per unit for lighting within the two rooms in which the plant is being operated. Lighting of a factory is, however, generally treated as quite distinct from domestic lighting and in fact as an industrial use of energy. We are told that it is difficult to remedy this by legal action within the terms of the licence. Even so, we think that efforts should be made to remove this and similar lacunae by amicable agreement and that such questions should be kept in mind when licences are given out in future.

105. In conclusion it may be said that the power supplied by the hydro-electric scheme for small installations

is cheap in comparison with electric power in other towns in these provinces situated outside the grid area. We are satisfied that there is considerable scope for the increased use of electricity, whether generated by water or otherwise, for industrial purposes such as cotton gins, cane-crushers, sugar centrifugals, oil extraction, flour milling, ice making, brass polishing, electroplating, wood lathes, and hand looms. The introduction of the sliding scale industrial tariff based on load factor, as well as of the two-part tariff which is especially applicable to seasonal industries should stimulate the further utilization of electric power for industries. But the essential condition in the demand for these purposes must be the cost of electric power compared with that of manual labour or other forms of mechanical drive, in relation to the outturn and the disposal of the goods made. We consider it advisable to reduce as far as possible the tariff rate for small industries, particularly those which use motors of 2 horse power or less, and suggest that the possibility of doing so may be explored by the Irrigation Department. We do not regard most of the difficulties urged against the use of electric power to be serious and consider that they will disappear in due course. We recommend, however, that practical demonstration and propaganda should be continued and steps taken in close co-operation between the Irrigation, Industries, Agriculture and Co-operative Departments to make the economics of the electric drive more widely known to the general public, both urban and rural. For this purpose detailed schemes for specific industries should be drawn up by the Irrigation and Industries Departments in consultation with each other, showing the capital cost, the probable running expenses and the estimated expenditure on raw material and income from the sale of the articles produced. There will have to be different schemes to suit the local conditions in each place. When issuing such schemes, it should be made clear that the profits estimated are purely hypothetical, and will vary considerably in accordance with market conditions, efficiency of output and other changing factors. One such typical scheme is printed as Appendix IV.

Finally, we emphasize the importance of increasing the facilities for the purchase of electrically driven machinery by means of a generous system of *taqavis*, small industrial loans and other advances.

CHAPTER V

PROVISION OF FINANCE OR RENDERING OF FINANCIAL AID

106. There is a feeling in many quarters that lack of capital and especially of financial accommodation is among the principal factors hampering India's industrial development. Money may be required by industries for one or more of the following objects, viz :

- (a) the block account, i.e., for machinery, site, buildings, fixtures, etc.,
- (b) working expenses, i.e., purchase of raw materials, costs of manufacture, etc.,
- (c) marketing the articles manufactured, and
- (d) replacement, reorganisation or expansion.

Ordinary commercial banks are, from the very nature of their resources, precluded from investing their money with industrial concerns, especially for, or on the security of, the "block." Private capitalists are also shy of coming to the help of actual or prospective industrialists, when it is not definitely known that the business propositions put up are sound. Hence a demand has arisen that the state should fill the gap and supply, or help in supplying, the necessary industrial finance on suitable terms and conditions ; state action in this direction has been found necessary in many other countries and has helped very appreciably in their industrial development.

107. Direct financial assistance by the State may, subject to certain conditions, take one or more of several forms, such as—

(A) Loans which may be advanced by Government itself, or by some bank or corporation having Government backing in some form.

(B) A guarantee by the State of the cash credit allowed by a bank.

(C) Supply of machinery on the hire purchase system.

(D) Subscription to share capital.

(E) A guarantee of dividends on shares.

(F) A direct grant or subsidy to help in the purchase of machinery or to enable dividends to be paid ; such grants may be either lump sum payments or may be in the nature of bounties on the basis of the value of articles produced, sold or exported.

(G) A grant in kind in the shape of land, buildings, plant, machinery or other equipment, raw materials, firewood, water, etc.—free or on favourable terms.

(H) A guarantee for the purchase of a part of the products, generally for State requirements.

Each of these will be considered separately. In addition help may be given indirectly in other ways such as reduction of freights, imposition of tariffs, etc. which, though they have a great and important bearing on the development of industries are outside the purview of the local Government. Indirect assistance may however be given by the latter in the shape of exemption from taxes such as octroi, the loan of experts, etc.

A(i)—Loans to Industries

108. The Industrial Conference of 1907 did not *Historical.* recommend loans to individual industrialists. In 1914, however, a committee consisting of Messrs. Hailey, Chatterjee and Burt recommended that Government should aid banking institutions and something of the nature of an industrial bank should be started for giving loans to industrialists. The Indian Industrial Commission of 1916—18 found that “generally speaking, the existing banking system was too inelastic and insufficient to meet the needs of the country and that development (in respect of industries) was greatly retarded because the banks refused to advance money for lengthy periods on the security of buildings and plant.” They did not support the formation of an industrial trust or financial corporation, but were apparently in favour of industrial banks, though in the absence of suitable material they could not formulate a definite scheme for the purpose and recommended the formation of an expert committee to put up concrete proposals. Meanwhile “Industries” became a provincial (transferred) subject. The Sir Thomas Smith Committee appointed in the United Provinces in 1922 considered that it did not have sufficient details before it to warrant a recommendation to establish an industrial bank, and pointed out that owing to scarcity of money such a bank would not be able to lend at below 12 per cent. It recommended that Government themselves should, advance money for pioneer industries and to small industrialists through a Board of Loan Commissioners. This was accepted by Government and a Board was duly constituted with

liberty to receive applications for loans from all classes of individuals or corporations engaged in industrial development—whether pioneer or not; Government could not legally empower the Board to sanction loans, but gave an assurance that in most cases the recommendations of the Board would be accepted without much further scrutiny or hesitation. These decisions were endorsed by the Burn Committee in 1924. The Provincial Banking Inquiry Committee in 1930 recommended an industrial bank, but the majority of the Central Committee took a different view and recommended the establishment of provincial financing corporations instead.

*The
present
position.*

109. Thus the present position is that such loans as are advanced are still given by Government on the advice of the Board of Loan Commissioners. The following statement shows the amounts of loans actually advanced from year to year and the budget provision for the same, while Appendix V gives complete information about all the loans advanced :

Table showing the budget provision for and amount actually advanced as Industrial Loans for the years 1921-22 to 1933-34

In thousand rupees.

Year	General loans			Loans to co-operative banks		Loans to ex-students		Total	
	Budget provision	Amount actually advanced		Budget provision	Amount actually advanced	Budget provision	Amount actually advanced	Budget provision	Amount actually advanced
		Over 10,000	Up to 10,000						
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1921-22	Nil	Nil	Nil	Nil	Nil	Nil	,3	Nil	,3
1922-23	5,00,	11,12,	Nil	Nil	Nil	5,	Nil	5,05,	11,12,
1923-24	2,00,	Nil	Nil	Nil	Nil	1,	Nil	2,01,	Nil
1924-25	2,00,	1,42,	Nil	20,	14,	1,	Nil	2,21,	1,06,
1925-26	1,00,	80,	7,	20,	19,	1,	,7	1,21,	1,56,
1926-27	1,00,	Nil	Nil	20,	7,	1,	1,	1,21,	8,
1927-28	45,	40,	5,	20,	20,	1,	Nil	,6,	65,
1928-29	90,	40,	Nil	10,	Nil	1,	Nil	1,01,	40,
1929-30	90,	Nil	Nil	10,	Nil	1,	Nil	1,01,	Nil
1930-31	50,	15,	6,	5,	Nil	1,	,6	56,	21.6
1931-32	30,	Nil	18,	5,	5,	1,	,9	36,	23.9
1932-33	20,	Nil	Nil	5,	Nil	1,	Nil	26,	Nil
1933-34	15,	Nil	Nil	5,	Nil	1,	Nil	21,	Nil
Total for (13 years):									
(a) Number	..	11	6	..	11	..	7	..	35
(b) Amount in lakhs.	14.40	14.29	.36	1.20	.65	.16	.035	15.760	15.335

It will be seen that a total sum of Rs.14.29 lakhs has so far been advanced in the shape of large loans (i.e. exceeding Rs.10,000 each), out of which Rs.8.74 lakhs—exclusive of interest in most cases—have had to be written off as irrecoverable, while of the balance still due of Rs.1.34 lakhs, over eighty thousand are overdue, i.e. should have been paid by now, but have not been paid. Experience in connexion with the smaller loans (of Rs.10,000 or less) has been more satisfactory, and out of Rs.36,000 advanced only Rs.1,714 have had to be written off. It will be seen from Table II of Appendix V that the sugar, flour-milling and glass industries secured the largest amounts, while other industries for which loans were granted were type-casting, match, printing ink, brassware, jam-making and fruit canning, manufacture of disinfectants, manufacture of bobbins, and meto-china, tanning and the manufacture of dyes and tanning extract from catechu. It is partly owing to the fact that so many of these loans have been unsuccessful and partly due to financial stringency that, excepting one loan of Rs.15,000 advanced in 1931-32, no large loans have been advanced in the last four years.

110. It may fairly be said that whereas the smaller loans have been reasonably successful, the larger ones have been a failure; they have involved Government in considerable loss and, except perhaps in the case of the glass industry, have failed to assist the industry concerned to any material extent. The main reason for this appears to be that Government does not possess banking experts, and considerations other than those of pure banking have often to be taken into account when advancing loans for industrial purposes. The Board of Loan Commissioners has to work under several disabilities. It cannot examine applications with the same care or thoroughness as a bank or banking corporation; it can only meet once in a way and has to depend almost entirely on the reports submitted to it; and these reports are not always accurate and reliable, especially as regards the value of the security offered which has to be estimated by a staff—whether the ordinary district staff or departmental—which is not trained for such work. Again, ordinary industrialists who are in a position to offer good security naturally find it more convenient to obtain loans from banks, and, speaking generally, it is only those who cannot get such loans who apply to the Board of Loan Commissioners.

Moreover, the publicity given and the detailed inquiries by subordinate officials often put off industrialists, while they get tired of the delays that take place. In a few cases the applicants had actually to refuse the loans after they were sanctioned as they had made other arrangements in the meanwhile. Further, there is a tendency on the part of many applicants for State loans to regard them more as grants than as purely financial transactions, and applications have even been made for money to repay old loans. About a hundred applications had to be rejected by the Board and this has not added to the popularity of this system of advancing loans.

*Small
loans.*

111. The conclusion that emerges from this study is that Government should continue to advance loans to smaller industrialists, but not to the bigger ones. For the former, it is not necessary to have a Board of Loan Commissioners, and loans can be advanced on the recommendation of the Board of Industries, which meets more frequently. If possible, the power to grant loans up to a certain amount may be delegated to the Director of Industries, so that there may be no division of responsibility and less delay. We do not consider that the State should advance large loans, and, therefore, recommend that the Board of Loan Commissioners may be dissolved.

*Large
loans.*

112. The question then arises as to how the financial needs of the bigger industrialists are to be met. We do not accept the allegation that they do not stand in need of financial assistance and can get all they require from the existing banks. As State-aid should not be denied to large-scale industries, we have examined several alternatives for supplying the finance needed by big industries. There is the possibility of Government helping an existing commercial bank to establish an industrial section for advancing such loans ; or again a separate industrial bank may be started ; or a financing corporation may be established.

*Industrial
section of a
commercial
bank.*

113. The first of these alternatives was suggested in 1929 by an expert committee presided over by Sir Brajendra Nath Seal for the Mysore State. The scheme is that the State bank should establish a separate section for the supply of long-term credit to industrialists on the recommendation of a statutory board ; Government should advance a certain sum to the bank at a low rate of interest, to be earmarked and utilized for

financial accommodation to industries. This amount would serve as a guarantee by the State. The bank would, of course, be free to make other advances as well. The Government should assist the bank in making the necessary inquiries about the suitability of the applicants and the sufficiency of the security offered by them, and the bank would have the advice of a statutory board having a few Government representatives thereon. The ultimate responsibility for the sanctioning of the loan should, however, be that of the bank. This industrial loan section of the bank should be worked as a detachable branch, which in course of time might form the nucleus of an independent industrial bank. We see one serious difficulty in this scheme. The establishment of such a detachable branch may be feasible in an Indian State which has its own State bank ; it is doubtful whether any of the existing commercial banks carrying on business in this province would be willing to take up a scheme of this kind. Nevertheless, the possibility of making arrangements with a commercial bank for this purpose may be explored.

114. An industrial bank which has to depend primarily on short-term deposits is obviously unsuited for financing industry, especially as regards block capital, and we do not, therefore, consider the establishment of an industrial bank feasible at present. A financial corporation, however, which works mainly with its share capital, and debentures and does not raise short-term deposits, may be able to meet the needs of industrialists to some extent. The constitution of such a corporation has been discussed in detail by the Central Banking Inquiry Committee in paragraphs 401 to 408 of its report. Government would have to help such a corporation by taking shares in it or by taking up debentures issued by it or by guaranteeing the principal or giving a guarantee for the payment of dividends, and so on ; they would have to be adequately represented on the board of directors, which should carry on the work without having any "managing agents." The corporation would advance money on the security of the block account of an industrial concern and in addition take some collateral security in the shape of other landed or house property. It might insist on having a voice in the management of the business to which it advances loans and might have to appoint a suitable inspecting staff to keep itself fully informed of the state of affairs. In view of the fact

A financing corporation.

that the share capital would not suffice to help more than a very few concerns, the corporation would have to arrange to borrow money from ordinary commercial banks on the security of the corporation itself and of the assets of the borrowing concerns.

115. We consider that a financing corporation along some such lines is desirable for the province. But we do not consider ourselves competent to advise Government as to the precise lines on which such a corporation should be formed and run, or exactly what assistance Government should give to it. We recommend that a committee of banking and commercial experts should be set up to examine the alternatives and make suitable suggestions.

A(ii)—Loans to Co-operative Societies

116. The Naini Tal Conference of 1907 suggested that Government should advance loans to co-operative societies of artisans just as they do to societies of cultivators. The Smith Committee of 1922 by a majority recommended that co-operative societies and banks should stand on their own feet and need not receive loans from Government. Government, however, decided that non-agricultural co-operative societies should be eligible for loans from the Board of Loan Commissioners. From 1924-25 onwards, a small sum has been placed every year at the joint disposal of the Director of Industries and the Registrar of Co-operative Societies, to be utilized for advances to co-operative banks, which would in turn give loans to societies of cottage industrialists.

117. As a result of this arrangement, Rs.65,000 have been advanced by Government to co-operative banks for cottage industries, such as brassware, durrie-making, etc. Only Rs.4,500 out of a loan of Rs.5,000 have so far had to be written off as irrecoverable. It cannot, however, be said that these loans have appreciably helped the development of industrial societies. Co-operative banks have in the past been able to raise deposits at rates lower than those they had to pay Government for these loans; naturally, therefore, they did not often find it necessary to apply to Government. Moreover, under this system the bank has to take the whole risk of making these advances, and to act as a buffer between Government and the societies. The Kashi Bank which tried to help cottage industrialists lost several thousand rupees in the process and few banks have a desire to follow in its train. We suggest that

Government should consider the advisability of shouldering at least a part of the risk, instead of leaving it all to the banks. The money should be advanced at as low a rate of interest as possible, if pioneer work in connexion with the organization of cottage industrialists is to be carried on successfully.

A(iii)--Loans to ex-students

118. Loans can be advanced by Government to ex-students of technical and industrial schools who are desirous of setting up in their own business, for the purchase of the necessary equipment. The total budget provision for this purpose has hitherto been only Rs.1,000 a year, but the greater part of this has remained unutilized, the total amount actually advanced so far being only Rs.3,500. It is said that this is due to the inflexibility and stringency of some of the rules and the fact that the maximum amount that may be advanced to a student is only Rs.600. We understand, however, that the rules are being revised and the procedure simplified. We doubt if these measures alone will suffice and surmise that the real difficulty is that, generally speaking, ex-students are not desirous of setting up in business, nor are they properly trained to that end. We consider it necessary that suitable measures (to be discussed in a separate chapter) should be adopted to encourage them to set up in their own business; these should be supplemented by a revision of the rules where necessary and the maximum limits of the loans raised; the provision of these facilities should also be made known to the students of all institutions.

B---A guarantee of cash credits

119. An alternative to the system of Government granting loans is to encourage banks to do so by Government guaranteeing to them a part of the loan. This renders Government liable to a certain extent for loss, but does not commit them to any immediate expenditure. This is particularly suitable for a time when Government have not got the necessary cash. The disadvantage, however, is that they do not know when they may be called upon to face the liability they have undertaken; it can also be urged with some force that it is not quite fair that the bank should take all the profits, when the State

takes most of the risks. A system of guarantees would appear to be more suitable in the case of cash credits required by industrialists for their working capital, than for money required for the "block." We recommend, however, that the views of the expert committee referred to in paragraph 115 may be asked for in connexion with this suggestion also.

C The Hire Purchase System

120. Many industrialists find it difficult to pay in cash for the machinery they require. They are sometimes able to arrange for payment by instalments, but in such cases they have often to pay an unduly high price for the machinery ordered. It seems possible that if Government could purchase the machinery outright and then give it to the industrialists concerned on the hire purchase system, it might be of substantial assistance to them. We understand that the system has been tried in Bihar and Orissa and in the Mysore State and that no serious difficulties have been experienced. We suggest that the feasibility of supplying machinery on the hire purchase system, either directly by Government or through an industrial financing corporation, if and when one is formed, may be further explored.

121. An objection has been taken in some quarters that, if Government were to take up this work, it would be competing with private enterprise. We, however, do not see any appreciable difference between Government advancing a loan for the purchase of machinery and Government purchasing the machinery themselves and giving it out on the hire purchase system; in both cases the money is recovered by regular and suitable instalments and the only difference is that in one case the machinery is mortgaged to Government and in the other it remains the property of Government till the last instalment is paid. Personal and collateral security is taken in both cases. It is true that there are some firms which carry on this business and supply machinery on the hire purchase system; but they find it difficult to obtain and gauge correctly the value of the security offered and have, therefore, to safeguard themselves by charging very high rates; nor can they meet all the requirements of industrialists. There would appear to be scope for work in this direction both by them and by Government.

*D—Taking shares in Industrial concerns
and
E—Guaranteeing dividends*

122. Assistance may be given by Government to industries by subscribing to the share capital of an industrial concern or guaranteeing dividends. Such action would encourage private capital to come forward. Of course in such cases Government would have to see that the affairs are properly managed; they may have some representation on the board of directors, and have their own men for inspecting and auditing the accounts. We consider that these methods of encouragement may be adopted in special cases and particularly for pioneer industries.

F—Money grants

123. The Naini Tal Conference of 1907 recommended that Government might make money grants for definite purposes to new enterprises if the result of such action was likely to be of general industrial advantage. Prior to 1921 all grants used to be given directly by Government—usually on the recommendation of the Board of Industries. Since then, however, Government have been placing a certain sum varying between Rs.15,000 and Rs.35,000 at the disposal of the Board of Industries, and the Board itself makes the grants. Appendix VI shows the budget allotments for, and the amounts actually spent on, these grants since 1921–22.

124. These grants have been given to numerous industries and for various purposes, such as—

(1) Manufacture of angle-iron, rivets, and bolts at Cawnpore.

(2) Manufacture of electrical goods, fountain pens, gramophones, fancy laces, and the utilization of electricity for power looms on a small scale, at Dayal Bagh, Agra.

(3) Manufacture of electric fans at Cawnpore.

(4) Improvement of dyeing processes for Agra durries, and the greater utilization of fast dyestuffs.

(5) Manufacture of pencils and crayons at Agra. Grants have also been given for technical and industrial

education. On the whole, it may be said that these grants have served a useful purpose and have helped a number of small industries, but no very striking development has taken place; this is not surprising considering the circumstances and the small amounts at the disposal of the Board.

125. We realize that this system of grants may not be altogether suitable for big industries, but we recommend that it should continue and should be expanded when financial conditions permit. The scope of the grants may include not only assistance to "new industries" but "such other objects and purposes as might, in the opinion of the Board, contribute towards the industrial development of the province"; in particular, grants may be given for assistance in the marketing of products and in experimental or research schemes; but the Board should not give grants to educational institutions. We may point out that a closer watch should be exercised by the Board over the utilization of the grants, and that the grantees should normally be expected to find an equivalent amount from their own pockets. A suitable sum should also be placed at the disposal of the Director of Industries, from which he may make grants for experimental or research work at educational institutions.

G—Grants in kind

126. In special cases where this is feasible, Government may help industries not by giving money grants but by providing equivalent facilities. For instance, it may help to provide land, buildings, plant, machinery or other equipment at a low cost; or it may help in the acquisition of land for an industry; or it may provide facilities for obtaining or itself supply the raw materials required by an industry in certain cases, e.g. wood from Government forests or water from canals, etc. Again, Government may place the services of its employees at the disposal of an industrialist for a limited period to help him in carrying out research, etc. All such cases must, however, be decided on their merits, and no rules can be laid down or specific recommendations made about such matters.

H—Guarantee of purchase of produce

127. As one of the chief financial difficulties of an industrial concern, especially a pioneer one, relates to

the marketing of its products, Government would be able to give considerable assistance if it could guarantee to take over a portion of the produce, provided of course it was up to a certain standard and was required by Government. This would be an indirect form of subsidy. The Mysore State has recently introduced a scheme for helping handloom weavers to market their products, not by making purchases itself but by subsidising private concerns to do so. Selected dealers have to undertake to purchase a certain amount of the cloth produced by cottage weavers. These dealers are advanced money at low rates of interest by the Director of Industries, acting on the advice of a committee, on their personal security and on that of the goods which have to be warehoused in the State bank; for this purpose a suitable sum is placed with the State bank which can be drawn upon by the Director of Industries, the bank getting a commission of 1 per cent. on the loans so advanced in addition to its out-of-pocket expenses for warehousing the goods taken as security. Thus traders or merchants are subsidised, so that they may be able to give a guarantee to the cottage workers that they will purchase their products. The possibility of adopting some such scheme may also be examined by the expert committee referred to in paragraph 115.

J -- Indirect financial assistance

128. There are various ways of giving indirect financial assistance to industries. Some of them such as the imposition of tariffs and reduction of railway freights, are beyond the purview of this committee, as they are not within the competence of the local Government; such matters should be brought to the notice of the Central Government as occasion requires. The question of granting, in special cases, exemption from certain hampering taxes such as octroi may well be considered. Each case in which it is found that a particular tax is damaging a local industry would have to be decided on its merits. Other forms of indirect financial assistance, e.g., experimental and research work, the supply of commercial intelligence, help in marketing, etc. have been dealt with in the relevant connexions.

Conclusion

129. We regret that we have not been able to put forward definite schemes for giving financial assistance to industries, but we have made various tentative

proposals, which may be examined by a suitable committee of commercial and banking experts in order to draw up detailed schemes. We consider that loans are needed both by big and by small industries. For the latter we suggest that Government may continue to advance loans of Rs.10,000 or less on the recommendation of the Board of Industries and that some powers to sanction such loans may, if possible, be delegated to the Director of Industries. We further recommend that Government should not themselves advance larger loans but should help in the establishment of a financing corporation or an industrial branch of a commercial bank for dealing with such loans. The Board of Loan Commissioners would have to be abolished. Loans to co-operative societies and to ex-students of industrial schools should, with a few alterations in the rules, continue. The advice of the committee of experts should be obtained as regards other forms of financial aid, such as a guarantee by Government to a bank of loans given by the latter to industrial concerns, the supply of machinery on the hire purchase system by Government, the purchase of shares by Government in industrial concerns, a Government guarantee of dividends on shares, and the conditions on which Government may give directly or indirectly help in guaranteeing the sale of a portion of the products. The advisability of giving relief by remitting octroi or other taxes in special cases or the supply by Government of land, raw materials, water, etc., free or at favourable rates must be considered and decided by Government in each individual case. Ordinary grants by the Board of Industries should continue and the scope of its activities expanded, so that it may be able to give grants and subsidies for all industries which need them and not merely for pioneer or experimental work; it should also be empowered to make grants for experimental or research schemes. A suitable sum should also be placed at the disposal of the the Director of Industries for grants for experimental or research work to be undertaken by educational institutions.

CHAPTER VI

STORES PURCHASE DEPARTMENT

*Organiza-
tion and
cost.*

130. The Stores Purchase department was established in 1921 as an experimental measure. On the recommendation of the Burn Committee, it was made permanent with effect from April, 1926. The special staff then consisted of a Deputy Director (Rs.1,000—Rs.1,500), nine clerks and three peons; the posts of Assistant Stores Purchase Officer and two peons were created in 1928. In 1931, the posts of Deputy Director, a clerk and a peon were abolished and the expenditure was brought down from over Rs.30,000 to under Rs.15,000.

131. The heads of the Textile School, Cawnpore, the Leather Working School, Cawnpore, and the Central Wood-Working Institute, Bareilly, act as textile, leather and wood-work experts respectively. In this capacity, they inspect the classes of stores that concern them; they are also expected to draw up specifications, advise the department about substitution, standardization and other modes of effecting economy, and the utilization of Government's own factories. The textile and the leather experts are given special pays of Rs.50 and Rs.20 respectively, and the wood-working expert is given a compensatory allowance of Rs.27 per mensem.

132. The following table shows the value of purchases made through the agency of, and the expenditure on, this department during the last five years :

Year	1928-29	1929-30	1930-31	1931-32	1932-33
Total value of purchases (in thousands of rupees).	33,45,	30,44,	31,42,	15,71,	16,38,
Value of Indian articles (in thousands of rupees)—					
(a) Total	23,81,	19,03,	22,09,	10,83,	13,61,
(b) Those made in the United Provinces.	12,24,	10,78,	11,82,	7,34,	6,58,
Percentage ratio of purchase of Indian articles—					
Total (a) All-India	71·18	62·53	72·2	68·97	83·11
(b) U. P. articles	36·6	35·4	37·9	46·7	40·1
Actual expenditure	39,269	31,213	32,680	30,590	14,741
Percentage ratio of expenditure to total value of purchases.	1·17	1·03	1·04	*1·95	0·90

* Due to financial stringency and consequent reduction of purchases.

It will be seen that the normal incidence of expenditure to the value of business has been a little over one per cent. (For the sake of comparison, it may be noted here that the Indian Stores department charges one per cent. for purchase and one per cent. for inspection.)

133. The department was set up to give effect to two main objects, viz., (a) Economy and (b) Substitution.

Its objects may be clearly restated as follows :

(a) To effect, in regard to the purchase of stores required for the use of the United Provinces Government, all practicable substitution of articles made in India (and particularly those made in the United Provinces) for imported ones as a measure of State encouragement to indigenous industries.

(b) To effect economy by (i) prescribing suitable specifications, (ii) standardization, (iii) purchase in bulk, (iv) inspections by qualified experts, and (v) publicity and free competition.

134. In addition, certain subsidiary principles should also be kept in view by the department, viz:

(i) To utilize, within the limits and subject to the conditions to be prescribed by executive orders, Government's own factories (e.g. those attached to jails, the criminal tribes settlement, industrial schools, engineering workshops, etc.) by purchasing from them, as far as practicable, articles required for the public service and manufactured or manufacturable at such factories.

(ii) To help, without giving price preference, (a) co-operative societies and (b) middle class youths, especially ex-students of the department's technical and industrial institutions, to market the products manufactured or handled by them.

(iii) To act as an adjunct of practical utility to the Department of Industries, (a) by assisting new as well as established United Provinces industries in relation to the purchase of their products, and (b) by helping to secure for the department's nominees (generally students and ex-students of the technical and industrial institutions and occasionally their staff and, in exceptional cases, even outsiders) reasonable facilities for practical training as apprentices in the factories, workshops and offices of the firms under contract.

135. We are aware that an authoritative body of opinion holds that economy and substitution are incompatible; that substitution must ultimately be a question of price preference and economy must *pro tanto* be sacrificed. Our view, however, is that the usual impediment to substitution is ignorance and *inertia* rather than economy, and that a centralized organization for co-ordinating purchases and constantly on the look-out for substitution without sacrificing economy can, and does, help the products of Indian industries to replace imported articles; individual purchasers are not in an equally strong position to render such help. Moreover, broadly speaking, it is in the direction of finish and polish rather than price or intrinsic quality that the products of Indian industries require any preference. As an illustration of substitution simultaneously with economy may be cited the successful introduction of Aligarh locks of a satisfactory quality in place of imported locks for the use of treasuries. Thus, our view is that, in practice, substitution is not necessarily inconsistent with economy.

136. The Stores Purchase department has succeeded, to a certain extent, in achieving its objects.

Achievements.

(a) On its initiative, pugree cloth made and naphthol-dyed in India was adopted in replacement of imported Turkey-red cloth. The substitution of Hume cement pipes made at Jhansi, locks and brass buttons made at Aligarh and many other articles made in India for corresponding imported articles can be cited in support of its claim. It has also encouraged U. P. industries connected with brass buckles, open steel racks, jaconet and gauze cloth, antiseptic dressing materials, screw jacks, etc. and claims to have assisted the pioneer scrap-rolling industry at Cawnpore to retain its foothold in the market against powerful outside competition.

(b) It is not possible to assess the savings effected in precise terms. After an examination of the cases cited by the department, we conclude that, on the whole, the Stores Purchase department, must have enabled Government to effect appreciable economies. A few illustrations may be given. By a mere scrutiny of the indent and

introduction of competition, the price of permanganate of potash was brought down by about 36 per cent., the tendering firm remaining unchanged. The prices of unit sheds and extensions were brought down from Rs.694 to Rs.631 and from Rs.411 to Rs.381 respectively, of a ten-mile track and engine from Rs.56,000 and Rs.16,000 to Rs.47,000 and Rs.14,750, respectively, of syphon pipes from Rs.115-11-0 to Rs.58-8-0, and so on; on the last transaction alone savings exceeding Rs.65,000 are claimed.

(c) Again, a number of articles have been standardized and detailed specifications laid down for textile articles, leather goods and certain miscellaneous stores.

(d) Even apart from the purchase of jail manufactures, jails have also been helped in other ways, e.g. by the establishment of the tailoring industry at one jail on the initiative of the Stores Purchase department and by the centralization of certain jail manufactures on its advice.

137. In short, the Stores Purchase department has rendered some assistance to Indian and particularly U. P. industries, effected economies, and, to a certain extent, helped Government factories. Nevertheless, we have considered the question as to whether it should be closed down and the agency of the Indian Stores Department utilized instead. We find, however, that the provincial organization is working at a low cost and, considering its cheapness, fairly efficiently. The heads of departments, who appeared before us, favour its retention. Moreover, no substantial advantage would be gained by transferring the work to the Indian Stores Department and the cost to the local Government would increase. We, therefore, hold that the Stores Purchase Department should continue as a provincial organization. In the subsequent paragraphs, we propose to examine its method of work and suggest some improvements therein.

Method of work.

138. As constituted at present, it is a co-ordinating rather than a genuine purchasing agency. In cases where it does not authorize direct purchase it bulks the requirements as far as possible, calls for tenders, selects the most advantageous ones—often in consultation with the consuming officers, notifies the arrangements

made, and arranges for the inspection of those important classes of stores for which a special inspecting agency is provided. Thereafter, however, it retains only a general responsibility for the working of the arrangements made by it. The actual ordering, transport arrangements, if any, checking and verification, inspection of stores after their arrival at their destination, payments,—all these are left to the consuming officers themselves. It does not give a certificate of discharge nor does it arrange for payment to the suppliers. Each of these aspects of the work will now be considered in detail.

139. *Responsibility for the giving of contracts*—The Stores Purchase Department should continue to draw up specifications and standardize articles in consultation with consuming officers. But, it is and must be the sole authority in the matter of all purchases of stores. Barring only the authorized exceptions specified in the rules or cases of authorized direct purchase, it is obligatory to make all purchases through its agency or in accordance with its arrangements. In practice, the Director of Industries will no doubt consult the consuming officers as he has so far been doing in important cases. But the final responsibility for placing contracts and orders and for the policy and procedure governing the purchases of stores for the public service in the United Provinces is, and should be, exclusively that of the Director of Industries. Attempts have sometimes been made to blur the Director's responsibility in this respect and to argue that he should have merely advisory functions, the final selection resting with the consuming officers. But the orders issued from time to time make it clear that the Director is and must be the final authority for placing orders. This is also in accordance with the practice in the Indian Stores Department. We recommend that this position should be clearly re-stated.

140. *Price preference*—Interlinked with the question of responsibility for giving effect to Government's policy is the question of preference in the matter of price, quality and finish as a measure of State aid to industries. That such preference should be given to a limited extent is generally recognized. The responsibility for deciding whether, subject to the rules laid down by Government, preference in the matter of price or in any other form should be given and if so, to what extent, should rest

with the Director of Industries. In practice the question of price preference will seldom arise. It is in respect of quality or finish that articles made in India may have to be given preference for some time. Moreover, even if preference is needed at first, it is likely that, with further experience, the suppliers would not need it indefinitely. We suggest that a formula somewhat on the following lines may be incorporated in the U. P. Stores Rules :

With a view to give effect to the above policy preference in making purchases will be given to the various categories of stores in the following order :

Firstly, to articles which are produced in India in the form of raw materials, or are manufactured in India from raw materials produced in India, provided that the quality is sufficiently good for the purpose.

Secondly, to articles wholly or partially manufactured in India from imported materials provided that the quality is sufficiently good for the purpose.

Thirdly, to articles of foreign manufacture held in stock in India, provided that they are of suitable type and requisite quality.

Fourthly, to articles manufactured abroad which need to be specially imported.

Subject to the above and to such limitations as may be prescribed by Government, the Director of Industries may, when he is satisfied that such a measure is justified, allow a limited degree of preference in respect of price, quality or finish to articles produced or manufactured in India either wholly or in part.

141. This may be supplemented by the issue of suitable detailed instructions to the department. We suggest instructions on the following lines :

(i) A strict comparison with prices prevailing abroad is not required, but the underlying principle is that the preference to be accorded to Indian products is to be tempered by the consideration of economy and should discriminate between indigenous and imported raw materials.

(ii) Ordinarily, a limited degree of price preference in favour of articles produced or manufactured

in India will be justified for one or more of the following reasons :

(a) When the industry in question is expected to fill a vital gap in the economic life of the country and is likely to take a firm root in the soil in the near future.

(b) To prevent any sudden dislocation of the labour market on a large scale.

(c) To regulate and control foreign competition especially during periods of temporary trade depression abroad.

(d) To counteract the advantage to foreign industries arising from the depreciation of the exchange of the country in question.

(iii) Price preference up to Rs.2,000 for any individual contract may be given by the Director of Industries himself. The rate of preference over the next lower category of stores may not exceed 5 per cent. if indigenous raw materials are used and 2 per cent. if the main raw material used is imported. When, however, the contract is for a sum of Rs.10,000 or less, the Director of Industries himself may give such preference up to $7\frac{1}{2}$ and 5 per cent. in cases involving the use of indigenous and imported materials respectively, provided that in the case of contracts for a specific article required by only one department such price preference may not be given by the Director of Industries without the consent of the officer who controls the budget, or in the case of a difference of opinion, without Government's approval.

(iv) All other cases in which it is proposed to give price preference should be referred by the Director of Industries to Government in the Industries department which will, before passing orders, consult the administrative department concerned.

142. *Direct purchase*—The working of a department intended to centralize the purchases of stores for all departments of Government must give rise to occasional complaints that the arrangements made by the Stores Purchase department are sometimes more expensive. But we feel that it is largely in respect of articles of low value that comparisons between the quality and price of articles supplied by the S. P. D. contractors and those available in the local market are likely to be

made to the disadvantage of the former. We recommend that the limit for direct purchases may be raised from Rs.50 to Rs.100; this should go a long way to remove the existing difficulties, even though it will affect "rate contracts" adversely. The power to make direct purchases is at present hedged round with the proviso—"until instructions to the contrary are issued"; this has been interpreted to mean that the department may make rate contracts about such petty articles too and that these would then be binding on all consuming officers. And yet, as a recent case relating to cycles and accessories proved, such arrangements may prove embarrassing to all concerned without even yielding economy. Hence we suggest that this proviso may be deleted so that, for their petty purchases consuming officers may, if they like, utilize the arrangements with the S. P. D. contractors but should not be bound to do so.

143. It may be possible for the department to delegate the power of direct purchase more extensively than has been the case in the past. For this purpose, it will be convenient if lists of articles are drawn up and revised from time to time showing :

(a) articles in respect of which neither substitution nor appreciable economy can be effected,

(b) those in respect of which substitution can be brought about, and

(c) those in respect of which only economy is possible.

In respect of (a) it should be possible for Stores Purchase department to delegate the power more extensively.

144. *Inspection*—A proper system for the inspection of stores is not only desirable but even essential for the successful working of any centralized stores organization. Unlike the Indian Stores department, however, the Stores Purchase department is not adequately equipped for full-fledged inspection duties. At the same time, it must be noted that for some of the most important classes of stores requiring inspection, e.g., all classes of textiles, leather goods, and wood products, the services of part-time experts are available for inspection after manufacture. Besides, wherever it is considered desirable, the agency of the Indian Stores department is also utilized for such work. As regards iron and steel, purchases are, in practice, made only from goods stocked in the Tata Company's yard at Cawnpore and previously

tested and certified by the Metallurgical Inspectorate of the Indian Stores department at Jamshedpur. In regard to the inspection of textile and leather articles for the Police department, a committee consisting of the textile or the leather expert and three police officers inspect the goods before despatch. Indenting officers themselves are also expected to work as checking and inspecting officers in respect of the stores required by them. It is possible to criticize the working of the Stores Purchase department on the ground of inadequacy of the arrangements for inspection especially in the case of goods not made at the headquarters of the *ex-officio* experts. But it should be remembered that when the department was not in existence and the consuming officers used to place their orders direct, they rarely arranged for inspection during manufacture or even before despatch. Thus Government's interests are not less safeguarded by the Stores Purchase department than they would be if it were not in existence ; besides, the complaints on this score rarely proceed from the consuming officers. Moreover, if elaborate arrangements are to be made for inspection, the cost would increase considerably. The existing arrangements may, therefore, continue, but the agency of the Indian Stores department may be utilized for inspections more often, when required.

145. *Certificate of discharge*—We understand that contractors have sometimes felt inconvenienced on account of the fact that in practice if not also in theory the responsibility for the grant of the certificate of discharge is blurred or divided or both. The department is not equipped to arrange for inspection during manufacture or before despatch, and the certificate of the indenting officer has, therefore, to be depended upon in a large number of cases. In regard to police purchases of textile goods a satisfactory solution was found possible in the appointment of a committee which inspects the goods at Cawnpore before they are despatched ; but similar arrangements cannot necessarily be made in regard to other articles and departments. The Inspector General of Prisons expressed himself definitely against such a committee being appointed for jail purchases and the Chief Engineers of the Public Works Department also consider that in regard to most of the Public Works Department purchases it would not be feasible

to arrange for inspection at a central place. In the circumstances, and consistently with the needs and resources of the United Provinces Government, we suggest the following arrangement :

(a) Where the department has its own arrangements for proper inspection, it shall be both expected and authorized to give the certificate of discharge. The consuming officers would, even then, have to check the quantities and calculations ; for this work the responsibility should be their own.

(b) As regards goods for which the Stores Purchase department has made purchasing arrangements but either (i) has no inspecting agency or (ii) has not cared to utilize it, the responsibility for the *quality* and *quantity* of goods despatched should be *deemed to be* that of the Stores Purchase department. Even when the consuming officers correspond direct with the supplying firms on matters arising in this connexion, they should be deemed to do so in the capacity of agents to the Stores Purchase department. The power to give the certificate of discharge in such cases also should be given to, and should be exercised by, the Stores Purchase department.

(c) As regards the actual inspection of goods after their arrival at destination, the responsibility should, in all cases, unless the goods have been inspected, and accepted by the Stores Purchase department before despatch, be clearly defined to be that of the consuming officers, but theirs should not be the final voice in the matter. Whatever they do should be clearly understood to be in the capacity of agents with a specified responsibility.

(d) Similarly, consuming officers should be made entirely responsible for check and verification of quantities and calculations at destination. Under such a system (i) where goods have been inspected by the Stores Purchase department prior to despatch, it will only have to await the check and verification report before proceeding to give the certificate of discharge, and (ii) where they

have not been inspected, it will have to await the consuming officer's report (in the capacity of an agent) on *quality* and also his check and verification report. In all cases the consuming officer should be empowered to give the certificate of discharge on behalf of the Stores Purchase department, if he is satisfied that it can and should be given. In actual practice such certificates will in most cases be given by the consuming officers—generally in the implied form of payment of the supplying firm's bills.

(e) In the case of purchases through the Indian Stores department or the Director General of Stores, London, the responsibility for the certificate of discharge should be that officer's with whom lay the final decision to place the order in question.

(f) In the case of direct purchase, the Stores Purchase department can, of course, assume no responsibility.

146. *Payments*—We understand that complaints have been frequently received in regard to payments to suppliers. In some cases no payment is made until the certificates of acceptance from every officer to whom goods have to be supplied under the contract have been received. The responsibility for payments is that of the Stores Purchase department, as it is the authority for placing the orders. But, for obvious reasons payments are, and will continue to be, made direct by the consuming officers. The Stores Purchase department should be empowered to direct a consuming officer, at any stage, that payment should be made to the contractor on the Stores Purchase department's responsibility. If there be any complaint about the *quality* of the supplies made, the indenting officer can and should take the question up with the Stores Purchase department. But, he should not have the power to withhold payment after the Stores Purchase department has taken upon itself the responsibility of directing that payment or part payment should be made. We understand that the Indian Stores department system is in essence similar to that outlined above. We need not state that in respect of direct purchases the consuming officers must continue to be exclusively responsible for payments.

147. In order to ensure prompt payments, clear instructions should be issued for the guidance of consuming officers. It may, for instance, be laid down that consuming officers must pay a certain percentage, say 80 or 90 per cent., of the total value of the goods within a fortnight of the receipt of the inspection certificate accompanying the goods, the balance being retained against possible disputes relating to quality. In those cases in which they are expected to do the "inspection after arrival at destination" as agents for the Stores Purchase department, the period of fifteen days should count from the date of arrival of the goods at the specified railway station from which they are to be taken to their destination. The advisability of laying down that, in case payment is not made within the prescribed period (allowing for such extension thereof as the suppliers may agree to), the consuming officer will be liable to pay interest at specified rates, may also be considered. An alternative suggestion is that the price payable should be liable to a discount if payment is made within a certain period, and that a list of cases in which such discount was not availed of should be submitted to the Government. On the whole it seems to us that the payment of interest will prove more satisfactory.

148. *Purchase by local bodies*—The utility of the department would be increased if the orders of the district and municipal boards as also of the statutory and other public bodies such as universities were placed through the department. The greater the bulk—the greater the possibility of effecting substitution and the larger the economies. We understand that the Allahabad University has been utilizing the agency of the Indian Stores department. We recognize that all that Government can do is to invite the attention of these bodies to this matter; they cannot be required to utilize the services of the department. But we suggest that every effort should be made to convince them of the mutual advantage that would accrue from their doing so. In suitable cases the Government grants to such bodies may be made subject to the condition that the Stores Purchase department's agency should be utilized.

149. *Closer touch with industry and trade*—Lastly, we think, the department should get into closer touch

with industries and trade. The officer in immediate charge should tour more than he does ; for this purpose he may if necessary be classified as a touring officer. He must pay frequent visits to the markets in the city. He can do more of inspection work than he does ; in fact, whenever possible he should consider himself the inspecting officer in respect of those classes of stores for the inspection of which no special arrangements are available. Lastly, the Stores Purchase department should maintain a live contact with the working of the Indian Stores department. We trust that the Assistant Stores Purchase Officer's "deputation" for training in the Indian Stores department will help him to widen his mental outlook and to establish useful contacts with the Indian Stores department organizations both at headquarters and in the provinces.

150. We consider that the Stores Purchase department is doing useful work on the whole and it should continue more or less on the same lines as at present. The Director of Industries who is also the Stores Purchase Officer must be the authority for placing orders for stores on behalf of other departments, except when direct purchase is allowed ; powers should, however, be given to consuming officers to purchase direct articles costing not more than Rs.100 without reference to the Director of Industries. The latter may grant price preference up to a certain limit, but if a contract is for a larger amount, he must act in consultation with the consuming officer concerned. The existing arrangements for inspection of articles supplied should continue, but the agency of the Indian Stores department may be utilized more often for this purpose. The responsibility for the giving of a certificate of discharge must be clearly laid down, and instructions issued so as to secure prompt payments to contractors. The advantages of the Stores Purchase department should be brought to the notice of local bodies and closer touch should be maintained by it with industries and trade.

Conclusions.

CHAPTER VII

INDUSTRIAL AND TECHNICAL EDUCATION

A—General

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151. Since the Naini Tal Conference of 1907 considerable attention has been devoted to the development of technical and industrial education. In 1910 there were only four Government institutions. By 1931 the number had increased to 30 (7 first class and 14 second class institutions and 9 model weaving schools), while another 66 run by local bodies or private organizations were in receipt of Government grants. Within the last two years, owing to the need for retrenchment, some schools have been closed and there are now 24 Government schools, in addition to the Harcourt Butler Technological Institute and 46 aided institutions. The present budget provision for technical and industrial education is Rs.9,38,000 and forms about 82 per cent. of the total grant of Rs.11.46 lakhs for the Industries Department. Appendix VII gives for each Government institution detailed information relating to the year in which it was established, the courses taught, the initial non-recurring expenditure, the average recurring expenditure incurred during the last three years, the percentage of employment of ex-students, etc. Out of a total budget provision of one crore and eighty lakhs during the last thirteen years as much as one crore and thirty-nine lakhs, which amounts to 77 per cent., has been spent under this head in addition to the expenditure on the headquarters staff who have to devote a major part of their time to the supervision of industrial and technical education.

152. *Objects* : Broadly speaking, the objects which these schools are designed to serve are :

(i) to train cottage workers and other artisans in improved methods, and help in the improvement of their technique,

(ii) to enable middle class young men to set up in their own industrial business,

(iii) to help middle class young men to secure employment in industries, and

(iv) to supply industries with trained men to take charge of industrial work in various capacities.

The larger institutions are also expected to carry on experiments and research and introduce new appliances and designs.

153. *Training of artisans* : As regards the training of artisans it is true that many schools were intended primarily to cater for the men in the trade and that a number of them still have "artisan classes." Various attractions have been offered to cottage workers to join them. A large number of subsistence stipends are provided ; no fees are charged ; demonstration parties are sent out to explain new devices, and popularize the schools among the artisans ; low educational qualifications are prescribed. In spite of all this, the result has not been, by any means, satisfactory. We have tried to collect information about the percentage of artisan and non-artisan boys in the various institutions. The information is far from reliable and complete, but it has been incorporated in Table I of Appendix VII for what it is worth. It will be seen that on an average only about 17 per cent. of the boys who are admitted can be said to belong to the artisan classes, although it is doubtful whether they really belong to that category. It may fairly be said that though artisans do sometimes send their children to these schools, they rarely go themselves, presumably because they do not find the training imparted to them to be of sufficient practical use. It might be no great exaggeration to say that skilled artisans often consider that the teachers at the schools, who are supposed to teach them, do not know as much as they do themselves. On the other hand, however, cottage workers and other artisans generally tend to take a narrow view, viz., "practical results measured by immediate monetary gain." It may, therefore, be said that on the whole the schools do not cater sufficiently for the needs of the artisans.

154. *Training for business* : Nor are they successful in helping to set up middle class young men in business ; the number so set up is only a fraction of the number trained. In fact, the training imparted is largely divorced from commercial practice, with the result that the students trained are not sufficiently qualified to set up in business on their own. It may, therefore, be said that in this direction also the schools have not much reason to be proud of the results.

155. *Training for employment* : They have, however, had a little more success in finding employment for the young men trained, as shown by the figures in column 14 in Part I of Appendix VII but these figures are far from reliable, and there are a large number of students trained at these schools who are unemployed. Now, unemployed men who have received general education are already a problem, but the unemployment of young men who have received technical and industrial training in a particular industry and cannot find employment therein is an even more serious problem. For general education is given with a cultural object, in order to create a body of useful and active citizens and not with a definitely utilitarian motive. Industrial and technical education, on the other hand, is imparted with a specific purpose, and if that purpose is not served, and the persons trained are not absorbed in the industry concerned, they are useless for anything else. As against this it is argued that the students trained at least imbibe an industrial bias. We consider, however, that if the aim is to turn the minds of our young men from thoughts of employment under Government or other bodies, it is necessary to create an interest and disposition towards industry and trade by imparting manual training in general educational institutions; carpentry, weaving, soap-making, iron work, clay modelling, basket weaving, leather working, etc., may be taught there side by side with general education and spread over a period of several years, so that the education may prove interesting to the boys and create in them a vocational sense. But to make a few hundreds of them waste four or five years of valuable time in receiving training for some particular industry and then turn them adrift on the world without any prospect of employment or business is inadvisable and even risky. Hence we consider it essential that the number trained should be regulated, bearing in mind the extent to which they can be absorbed. At the same time close co-ordination should be maintained between the Education and the Industries Departments.

156. *Supplying trained men for industries* : Further, it is essential to ensure that the quality of the training imparted is such as would help these youths to secure employment. A large number of schools do not appear to be either adequately equipped for modern needs or suitably staffed or to be in sufficiently close touch with the actual requirements of

industrial employers; we are authoritatively informed that the apprentices trained by the Cawnpore mills in their own workshops are considered more useful and better qualified for work in the factories than most of the students trained at the industrial and technical institutions. It is said that, on the one hand they are too academic and too highly qualified to make good mistries, and on the other, they possess imperfect knowledge and are too immature to be entrusted with the charge of machinery. It is undoubtedly true that industrial employers frequently tend to ignore the fact that schools are hardly designed to supply completely trained men who can straightaway be absorbed in industries; school training is only the foundation on which the men trained there have to build their own superstructures by intensive work under regular commercial conditions. On the whole, however, it may be said that the training imparted is not of sufficient use, either to the students or to the industry, and that the existence of these schools does not seem to have resulted in any notable progress in industries.

157. *System needs revision* : In short, it appears to us that though some schools have had a fairly creditable record of utility the prevailing system of technical and industrial education is not adequately fulfilling the objects with which it was started and that it stands in need of revision. In particular, suitable financial and other arrangements should be made for properly equipping schools with modern machinery etc., where required, keeping them up to date and staffing them adequately. Further, there should be a closer liaison between the industrial needs of the province and the imparting of education to meet those needs, and a careful examination should be made as to how this is to be effected. If, as a result of such examination some schools appear not to be serving a useful purpose, they should be closed; and others which are to be retained should be strengthened and placed on a sound footing. Special arrangements should also be made to enable the young men trained to set up in business and for meeting the needs of the artisans.

158. In fact, it appears desirable to recognize and adopt two distinct systems of training—one for artisans and the other for middle class men possessing a certain amount of general education. A clear distinction should be drawn between schools meant to give intensive practical

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schools
needed.*

instruction to artisans in improved methods and technique, and vocational schools intended to train up young men possessing some general education so as to fit them to set up in business or find employment in the industries for which they are trained. The organization and method of work of each type of school must necessarily be different. We accordingly suggest that there should be three types of schools, viz. (1) Central institutes and schools, (2) Elementary schools, some of which may serve as feeder schools—both these types being for middle class young men—and (3) instructional or tuitional classes for artisans. These suggestions will be explained in some detail in the succeeding paragraphs.

*Central
institutes
and
schools.*

159. A central vocational school should be a thoroughly well equipped and adequately staffed first class institution, designed to give instruction to middle class students possessing general education so as to enable them to set up in business or find employment in the industries for which they are trained. It should be maintained primarily to the extent required by the industrial needs of the province ; this, however, does not preclude the possibility of starting, as an exceptional measure, a school to develop a new industry. There should ordinarily be only one such school for each industry or phase of industry, as it is better to have one first rate institution rather than two or more second rate ones. The number may however be increased when the exigencies of the industry demand it and its needs cannot be met by one school. The number of students trained at each such school for any trade or industry should be so regulated that they can reasonably be expected to be absorbed in the industry or trade concerned or in an allied one wherein their training can be fairly effectively utilized. (For the purposes of this calculation full allowance should be made for wastage in various forms.) In addition to the regular training special courses may be held on suitable terms for young men who do not find the ordinary curriculum suitable to their requirements, and wish to take up training only in some particular line of work provided that the interests of those going through the regular course are not sacrificed thereby.

160. *Stipends for distant localities*: It might be objected that poor deserving students from all parts of the province may not find it possible to go to a single central institution. This objection, however, can be applied to so many institutions such as

the Agriculture College, and some of the industrial institutions, such as the School of Arts and Crafts, the Textile School, and so on. On grounds of finance as well as practical utility, the province cannot afford to maintain a first class technical institution for each part of the province. If the central school has something good and useful to teach, we have no doubt that its distance from his home would not prove a serious obstacle to a student really keen on joining it; after all our students do go abroad at considerable expense. However, to meet cases of exceptional hardship we recommend that a certain number of stipends may be reserved for localities or centres which are likely to provide good students who but for such assistance would not find it possible to join the school.

161. *Research, etc.*—The central school should not confine itself to training, but should also be a centre of research for the industry concerned. It should follow a clear-cut programme of such work carefully regulated according to the changing needs of the respective industries. To this end the head of the institution should be required to do only a limited amount of teaching and to pay special attention to research and investigations. He should also be responsible for the technical supervision of the institutions that we are recommending exclusively for artisans connected with his industry. In order to be in touch with the day-to-day problems of the industries or trade with which he is concerned, he should be required to do a certain amount of touring in the centres of that industry or trade. In order to emphasize the fact that his duties are partly teaching, partly research, etc. and partly supervision, he may in addition to being the Principal be called the Superintendent of the industry concerned and given some of the powers and assigned the functions of an "expert" to the department. To relieve him of the routine duties which unfortunately absorb the energies and take up a large amount of the time of the experts in the department, we recommend that he should be relieved of some of his teaching functions, and that a suitable assistant should be placed in direct charge of most of the routine duties connected with teaching proper and the administration of the school.

162. *Co-ordination between provinces*—In this connexion the question of co-ordination between several provinces in regard to higher technical education and

research in particular industries may be considered. It has been suggested that the policy of making every province self-contained in regard to all kinds of instruction and research is a costly one and the needs of the several provinces could be cheaply met by co-ordination, so that if a good central institution for a particular industry exists in a province, the neighbouring province should share the burden and depute its students to that province, while it may itself set up a first rate institution in another industry which might be used by both. For instance, the Civil Engineering College at Roorkee serves the interests of both the United Provinces and the Punjab. We feel that there is scope for an extension of this principle. The advisability of maintaining a central school when one already exists in a neighbouring province and can provide training for students from this province, may be looked into in consultation with the province concerned. So far as we can judge, no province has such a large number or variety of institutions as the United Provinces; co-operation with other provinces should help in developing them still more. For the present, however, this province will have to aim at inducing other provinces to help in maintaining its central schools, on condition that a certain number of students from those provinces are admitted to them. At the same time, in order to prevent duplication and to enable each province to know exactly what activities are going on in other provinces and universities the advisability of setting up some central co-ordinating organization may be examined.

163. *Commercial extension courses*—At these central schools special care should be taken to ensure that the instruction given is of a practical nature so as to enable the students to set up in business on their own after finishing their course. At present, the meagre activity in regard to the so-called commercial operations has little influence on the boys; it is little more than practical work on a large or moderate scale. The result is that, when they emerge from the schools, they do not know the rudiments of the commercial application of such knowledge as they have acquired and so they seldom think of anything but service. If the students are expected to make good in life, the conditions under which they work while they are at school should be assimilated as closely as possible

to those under which the respective trades and industries are plied in the province ; and to this end the institutions should be properly equipped and the students should be given commercial training of a practical kind. We, therefore, propose that commercial extensions of the course, as it were, extending over a year or two should be provided for students passing out of the central institutions who wish to set up in their own business. Where, for reasons of space, it is not possible to provide facilities to ex-students for carrying on these operations within the school premises, it may be arranged that the ex-students work along business lines under the close supervision of the school authorities in buildings close to the school.

164. Government may provide the capital cost for each undertaking, while the ex-student may meet the running expenses keeping the income to himself. If a number of students work together like this, they would have the advantage of organization and co-operation for purchase, handling and sale. It is possible that in the beginning the ex-students will not be able to make a living in this way owing to their inexperience ; but this period should be regarded as one of probation, and in any case it will serve as useful training and will indicate to them the difficulties that they should avoid when they start business independently. If necessary, stipends may be given to them to help them to tide over this period. We have considered the possibility of reducing the ordinary courses, in order that the students might save a year from the usual class-room instruction and utilize the same, but we understand that in order to give really first class instruction, the length of courses in the central institutions should, if anything, be increased rather than decreased. Hence it will be necessary to take up this business training after completing the regular course, which means that the total period of training will be extended by a year or two in the case of those students who wish to set up in business. We feel that this period will be spent to advantage and will help to achieve the real object with which the State provides industrial and technical education.

165. *Apprenticeships*—At the same time, we should make it clear that under modern conditions practical and commercial training in the institutions cannot adequately take the place of such training in the factories. Hence, at any rate in the case of students of those institutions (or

sections thereof) which cater for the needs of factory-scale industries, a regular system of apprenticeships should be adopted. The influence of the Stores Purchase section with the contracting firms should be utilized for this purpose.

Instructional or Tuitional Classes.

166. Closely interlinked with the central school, there should be branches or off-shoots thereof for imparting instruction to artisans. These might be called tuitional or instructional classes and should differ from the fixed schools of the vocational type in that they should go to the homes of the artisans themselves instead of expecting the latter to come to them. Each class should consist, as a rule, of a single practical instructor fully acquainted with the methods and conditions of work of the indigenous artisans belonging to the industry or trade concerned. He should be better equipped than the artisans in the theory as well as the practice of that trade or industry, and should have extensive practical experience of the type of work to be done. We wish to lay particular emphasis on this, as we believe that there exists a legitimate feeling that many of the present teachers are largely theoretical and possess only book knowledge. What we visualize is a real *ustād* who should be capable of commanding the respect of the men in the industry and who has some definite practical knowledge to impart. The teacher should be borne on the staff of the central vocational institution for that particular industry or trade, so that he should be interchangeable with the other members of the staff and keep his knowledge up-to-date. We feel that if a man is retained on such duties for a considerable time, he is likely to get out of date and will, therefore, not be able to impart knowledge that will be of sufficient use to artisans. It may be necessary to attach one or two menials to the class. We do not think that a clerk will be needed; if he is, he should be a person who can also serve as an assistant.

167. *Object should be practical*—The object of these classes should be to impart to the artisans the knowledge of some particular new technique and make them expert in its use. Such a class should clearly not be a permanent fixture, for it ceases to have any value after the special improvement it is desired to popularize has been generally introduced. Accordingly, there should be no regular class rooms or fixed abode for these classes. The teacher will

ordinarily have to go to the homes of the artisans themselves to guide and instruct them ; or it may be found more practical to have a central place in the locality where a number of artisans could come together ; that place might be a hired building or it might be the house of one of the artisans themselves. The teacher will have to settle down at some convenient centre for some time and attract the artisans to his temporary habitation. No time limit can be fixed for his stay in a particular locality ; he should halt there as long as he is required for giving effective instruction in regard to methods which he thinks the artisans stand in need of learning. The needs of the various industries differ materially, and while an instructor in one industry may manage to impart the necessary training to the artisans of a locality in six months, one in another industry may have to stay for two or three years. These classes would thus be midway between fixed schools and peripatetic or demonstration schools of the type tried some years ago and found to be unworkable. Classes run along these lines would be specially suitable for industries like handloom weaving, dyeing, tanning, etc., which do not require a large number of appliances in a particular method of work. After the teacher has trained a fair number of persons in one locality, he should pass on and settle down in another.

168. *Supervision needed*—It is essential that these classes should be adequately supervised, especially as regards the technical side of the instruction imparted. The principal defects of the peripatetic weaving schools were that they stayed in each place for too short a time to be able to impart effective instruction and that they could not be adequately supervised. As the principal of the Central Weaving Institute had no time to keep a close watch on the work of weaving schools, their supervision was entrusted to the divisional superintendents. The net result was that they received insufficient technical advice and guidance. We are strongly opposed to the idea of placing these tuitional classes under the divisional superintendents so far as the technical side of the work is concerned. They are administrative officers and cannot possibly be expected to give technical advice or assistance. For technical purposes, therefore, we recommend that the head of the central vocational institute concerned should be in charge of all instructional classes attached to his institute. For this purpose he should get

monthly programmes from the instructors and inspect their work from time to time and see that it is carried on along right lines. Supervision of a general nature may be exercised by such officers as are placed in charge of industrial education ; they should also be kept informed whenever a class is about to be shifted from one locality to another. Inspectors and Assistant Registrars of co-operative societies may also in the course of their ordinary duties visit these instructional classes and note and report on their work.

169. *Number of such classes*—As regards the number of such instructional classes which should be started we are not in a position to make definite proposals. That will have to be investigated. As a general principle, however, we may state that all the existing institutions or classes that were meant to cater for the needs of artisans, as distinct from classes which although at present designated as artisan classes are in actual fact not meant for and do not serve them, should be abolished and replaced by instructional classes according to the needs. This, however, does not mean that for every institution abolished a corresponding instructional class must necessarily be started ; and conversely there need be no objection to the opening of such classes for industries for which no artisan schools exist at present. While making specific recommendations about individual institutions, we have, in some cases, indicated where in our opinion they should be replaced by instructional classes.

170. *Other help*—At the same time, we must emphasize the point that training of artisans even by *ustads* is only one of the modes of helping them. Unless it is linked up with other forms of state help (finance, marketing, advertisement and canvassing, co-operative production so as to reduce costs, etc.) the results may be too meagre to make the right sort of appeal. Close collaboration should be maintained between the Industries Department, especially the heads of the central institutions and the staff of the Co-operative Department, particularly that which deals with industrial societies.

Elementary and Feeder Schools.

171. In some cases it may be necessary to have schools not for artisans but for their boys, or for middle class young men, of a status lower than the central school ; some of them may be so designed as to function as feeders to the central institutions. Such schools should aim at supplying a definite local need, and should impart

sufficient preliminary training to enable the students to obtain employment as subordinates in the industries concerned or to pursue their studies in the central school; in the latter case, the students should be given credit for the training received at the elementary or the feeder school when they join the central institution. Hence, these schools should also be subordinate to the corresponding central institution and the courses at feeder schools should be so regulated as to lead to higher instruction in the central school if the students desire it. For instance, a student possessing a prescribed minimum educational qualification may receive elementary training at a district carpentry school and then go on and complete the course at the Bareilly Central School; or again, an ex-student of the Batuk Prasad Khattri Industrial Institute, Benares, may like to follow up his training there by attending the School of Arts and Crafts for artistic work. Here again, we cannot say how many such schools should be maintained; the case of each individual school must be decided on its merits, with due regard to the need that it is intended to supply.

Section B--Individual Institutions

172. We shall now examine the case of each institution in the light of the general principles enunciated above. As it appeared to us that certain institutions might have to be closed, we considered it desirable to hear what their heads had to say on the subject. Accordingly before taking final decisions we examined the heads of the Carpentry schools at Allahabad, Fyzabad and Dehra Dun, the Government Leather Working School, Meerut, the Tanning School, Fatehpur, the Batuk Prasad Khattri Industrial Institute, Benares, the Central Weaving Institute, Benares, the Weaving and Cotton Printing School Bulandshahr, and the Model Weaving Schools at Najibabad (Bijnor), Mau (Azamgarh), Khairabad (Sitapur), Agra, Muzaffarnagar, and Almora.

173. The working of the Technological Institute was scrutinized by an Inquiry Committee in 1931-32 and Government orders on its recommendations were passed in September, 1932. We have, therefore, refrained from making any detailed inquiry about this institution. At present the post of Principal is held *ex-officio* by the Director of Industries, and there are three sections, viz., Sugar, Oil and General Research. The last

*The
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provides for not more than four advanced scholars for research, but the other two sections are for teaching also. The Sugar section receives help from the Imperial Council of Agricultural Research and the Sugar Technologist to that body is the honorary head of this section. Owing to the keen demand for sugar technologists the teaching work in this section is assuming great importance.

174. *The Oil Section* is only being maintained provisionally and according to the orders of Government the continuance of this section is contingent on the receipt of financial assistance from the Imperial Council of Agricultural Research or some other provinces in the shape of regular contributions for training their students. A proposal was accordingly submitted to the Imperial Council of Agricultural Research to take over the Oil section and maintain it as an all-India institute. In view of the importance of the oil industry to the province, which has led us to recommend that it should be one of the three major industries on which the department should concentrate for some years to come, and the fact that the Imperial Council of Agricultural Research is likely to give a grant for its maintenance, we feel that the Oil section should be made permanent and strengthened and expanded so as to serve as an all-India institute of Oil Technology; in course of time it may be taken over by the Imperial Council.

175. *Glass Expert*—In view of our recommendation that the glass industry should be one of the major industries which should be taken up by the department for intensive development, it will be necessary to appoint glass technologists from time to time to develop different phases of the industry. They should carry on research into the problems of the glass industry with the assistance of any advanced scholars attached to the General Research section that may be available. Some subordinate staff and provision for tools and plant and supplies and services will be necessary for this work, but no regular glass section need be opened and no arrangements made for imparting instruction in this subject.

*Technical
schools.*

176. The department is running three technical schools which give instruction in mechanical engineering at a total cost of about one lakh and forty-one thousand. Two of them are run on essentially similar lines, but the third (Jhansi) is modelled and run on different principles.

177. *The Technical School, Lucknow*, is the oldest and the largest of the three, having been established in 1892 ; it was reorganized as a technical school in 1909. It has a budget of Rs.68,000 in addition to Rs.1,500 for commercial operations. It has provision for (a) a five years' engineering mechanics course, and (b) a five years' electrical mechanics course, both of which are designed to turn out men who, with some practical experience, can take up work as chargemen, head mistries, foremen and assistant engineers, (c) a three years' light machines mechanics course, which aims at turning out skilled artisans and mechanics for making and repairing small machines such as watches, clocks, gramophones, sewing machines, typewriters, meters, etc., (d) an oil-engine drivers course of six months' duration meant for training in the maintenance of oil engines, and (e) a three years' painting course designed to turn out practical painters for carriage and furniture painting, house decoration etc. It appears to be supplying a real need, but it stands in need of considerable reorganization. We recommend that the suggestions embodied in the note prepared by Mr. R. C. Srivastava as Deputy Director of Industries in 1930 should be given effect to with the exception that no motor drivers class need be started.

178. *The Technical School, Gorakhpur*, was started in 1911 to be run in connection with the Bengal & North-Western Railway Workshops. It has two different courses,—(a) a three years' course for mechanical and electrical engineering followed by two years' apprenticeship in a railway or other-workshop and (b) a three years' course for artisans for training in practical work connected with workshops with a view to qualify them as engine drivers, fitters, turners, pattern makers and mistries for electric wire work. Though this course is designed primarily for artisans, their number in the class is, on an average, only 4 out of 30. The total expenditure of the school is Rs.50,000. It specializes in training mechanics who later obtain employment mostly in the numerous sugar factories in the district. About 90 per cent. of the ex-students are thus employed. This school is supplying a real need and should continue, at least for the present.

179. *The Technical School, Jhansi*, was started in 1919 with the object of turning out specialized mechanics under strict factory conditions available at the Great

Indian Peninsula Railway workshops. The total expenditure of the school comes to about Rs.21,000. It appears to be primarily intended to be a training ground for the foremen and mistries required by the G. I. P. Railway. The number of students trained at the school every year is twenty. An arrangement has recently been made with the Railway administration which is expected to provide eight or ten U. P. youths with employment in the G. I. P. Railway workshops. But, even so, it does not appear to us that an expense of Rs.21,000 a year for this purpose is altogether justified. Besides, the school appears to be primarily designed to help the railway and not develop industries. Moreover, a great part of the practical training is given not at Jhansi but at Bombay; there appears to be no reason why the theoretical training which is now given at Jhansi should not be imparted at Lucknow. We accordingly recommend that the school at Jhansi may be closed, and arrangements made if possible with the G. I. P. Railway for their taking a certain number of students trained at Lucknow and for imparting instruction in theory at Lucknow to non-U. P. students recommended by the railway who now receive it at Jhansi. Messrs. Shah and R. C. Srivastava, however, hold that this school should, if possible, be retained.

*Textile
schools.*

180. There are four institutions for the textile industry, viz., the Textile School, Cawnpore, the Dyeing and Printing School, Cawnpore, the Central Weaving Institute, Benares; and the Weaving and Cotton Printing School, Bulandshahr, in addition to six model weaving schools. The expenditure on the four institutions is Rs.39,000, Rs.49,000, Rs.35,000 and Rs.15,000 respectively and on the six model weaving schools, Rs.32,000 making a total of Rs.1,71,000 for all these institutions.

181. *The Textile School, Cawnpore*, was established in 1923 when a corresponding class which had existed at the Thomason Civil Engineering College, Roorkee, since 1906, was closed. The institution is a technical and engineering school for textile workers in mills. There are three courses (1) a four years' technical course, of which two years are devoted to general training in both the theory and practice of weaving according to western methods, the third to specialized training in carding, spinning and weaving, and the fourth to apprenticeship in a mill, (2) an apprentice class for cotton carding, spinning, weaving or textile engineering,

and (3) a three months' artisan course for instruction in the operation of a particular machine or process on which the mill worker in question may be engaged, e.g., carding, spinning, etc. The school appears to be catering satisfactorily for the needs of the Cawnpore mills and its popularity is increasing.

182. *The School of Dyeing and Printing* has two distinct courses—a three years' foremen dyers class and a two years' artisan class. The subjects are (1) organic and inorganic chemistry, (2) dyeing, bleaching, printing and finishing, (3) use of machines, and (4) colouring matters, in the foremen dyers class, and general instruction in practical dyeing, bleaching and printing, in the artisans class. In addition, three peripatetic dyers are also attached to the school, who are expected to stay in selected places for reasonable periods to train local workers in improved methods of dyeing. This school too is serving a useful purpose. It was instrumental in the establishment of the fast dying of silks and of aéro-graph printing. To some of us the cost seems to be out of proportion to its importance in the textile industry.

183. *The Central Weaving Institute, Benares*, is intended for the handloom weaving industry and is expected to carry on experimental and research work in addition to training. It has three self-contained artisan classes of a year's duration each, a senior weaving class of three years' duration, a hosiery class and a teachers' training class. Of late it has shown some progress and useful appliances and patterns have been invented by its present head, although the artisans of Benares do not seem to care very much for the training available there.

184. *A Textile Institute*—We feel that better results would be achieved by amalgamating all these institutions into a single first class institute for textiles situated at one place; for obvious reasons this must be Cawnpore. Although the needs of handloom weaving and factory weaving are not alike, a good deal of the theory and even a part of the practice is the same for both handloom weaving and machine weaving. Thus not only will economies be possible by providing instruction for the two at one place, but the outlook of the students will also be widened. Again, dyeing is only one of the phases of the textile industry: in fact, some instruction in the theory of textiles has to be imparted at the dyeing school: that duplication can be avoided by providing instruction in

dyeing in a section of the same institution instead of in a self-contained one. We therefore recommend that a scheme for a Central Textile Institute should be prepared on these lines. The Institute should be in charge of a suitable qualified principal and under him there should be a staff of lecturers, demonstrators, etc., for teaching the different branches of the textile industry, namely, carding, spinning, weaving, dyeing, bleaching, calico-printing, finishing, handloom weaving, etc. Such members of the present staff of the three institutions to be amalgamated as fit into a scheme thus prepared should be retained. We think that such a central institute can be run with a budget of about Rs. 80,000. Mr. Shah's view, however, is that the budget will have to be in the neighbourhood of Rs. 1,00,000, if a reasonable standard of efficiency is to be maintained and none of the existing activities to be unduly impaired.

185. *The Weaving and Cotton Printing School, Bulandshahr*, was started in 1926 in order to meet the special requirements of the Bulandshahr District, viz. the printers of Jahangirabad, the weavers of fine *pugrees* and muslins of Sikandrabad, the carpet weavers of Jewar and the weavers of red binding cloth called *kharwa* of Khurja. It consists of two sections (1) weaving and (2) dyeing and printing. The former course is practically the same as in the model weaving schools. The dyeing and the printing section has a two years' course which aims at improving the rule-of-thumb methods of the indigenous printers. We were told that the school was turning out "printers, dyers, dry-cleaners, washers and weavers," but in our opinion it cannot claim to be serving a useful purpose. The weaving section stands on the same footing as a model weaving school. The number of annual admissions to it is 20, of whom only seven are said to be artisans, but the annual passes are only one artisan and eight non-artisans. In other words, a solitary artisan is trained every year in this section, whereas it was supposed to assist the weavers in special lines. The headmaster of this school, who put in a very spirited defence of it, admitted that the weaving section had not been as successful as it ought to have been and that the Sikandrabad weaving industry was declining. In short, the weaving section of this school will probably achieve better results if, like other model weaving schools, it is converted into an instructional class. As regards the dyeing and printing section, it

may be pointed out that the annual admissions amount to only eight, of whom five pass out annually, only one of them being an artisan. These figures show that there is little justification for maintaining a separate institution for dyeing and printing at this place. A non-artisan could certainly get better training at Cawnpore and instead of the solitary artisan who passes out of this school a good number of *chhipis* could be trained better at an instructional class attached to the central institution at Cawnpore, where special arrangements can be made for those who wish to learn the specialities of printing of the Bulandshahr area. We, therefore, recommend that this school may be closed and replaced, if necessary, by instructional classes.

186. *Model Weaving Schools*—Formerly there were seven peripatetic weaving schools and eight fixed weaving schools in the province, the latter being mostly aided. The function of the peripatetic schools was to arrange demonstrations and introduce amongst the weavers the results of experiments obtained at the Central Weaving Institute. In 1924 a committee called the Weaving Schools Committee presided over by Khan Bahadur Sheikh Maqbul Husain Sahib was appointed to enquire into and reorganize these weaving institutions. That committee found that the peripatetic schools had not functioned satisfactorily, partly because they were not properly supervised and partly because they stayed at each place for too short a time. The committee therefore recommended the establishment of fixed weaving schools, to which an instructor would be attached; it was hoped that he would carry on demonstrations amongst the local weavers and thus perform the functions of the peripatetic schools in addition to training boys. "Model Weaving Schools" were accordingly established. In the beginning a few of them succeeded in attracting a certain number of artisans and popularizing the use of improved appliances. But we find that most of them are not serving any useful purpose at present. Artisans for whom they were intended rarely go to these schools. We consider that they should be replaced by instructional classes, so that the teachers in charge may go to the homes of the artisans and introduce among them such improved methods and appliances as they may have to demonstrate, shifting to another centre when the needs of the artisans of the centre tackled have been satisfied. The school at Almora caters for the woollen

industry and as a certain amount of research may have to be carried on in the hills in this connexion, especially as regards the manufacture of the finer woollen fabrics like *chadars* and tweeds, this institution may perhaps be retained for the present as it is or as a feeder school.

Wood-
working
institu-
tions.

187. There are five wood-working institutions in the province, viz, the Central Wood-Working Institute, Bareilly, the Carpentry School, Allahabad, and the District Carpentry Schools at Fyzabad, Dehra Dun and Naini Tal. Their total cost is Rs. 1,73,000 excluding Rs. 36,000 for commercial operations.

188. *The Central Wood-Working Institute, Bareilly*, is the premier institution with a budget of Rs.89,000, in addition to Rs.30,000 for commercial operations. It has eight courses, viz.—

- (1) An artisan course for cabinet making and joinery 2 years.
- (2) A general wood-working course for cabinet making and joinery .. 3 „
- (3) An advanced cabinet making and joinery course 2 „
- (4) A cabinet making and joinery foreman course 2 „
- (5) A painting, polishing and wood finishing course 2 „
- (6) An upholstery course .. 2 „
- (7) A machine tool course .. 3 „
- (8) A kiln operator's course .. 1 year.

This institute was started in 1912. Owing to its proximity to the Kumaun forest area, it has been found to be very well placed for developing the wood-working industry. It is perhaps largely owing to its efforts that Bareilly furniture has acquired a reputation of its own. But the industry is now threatened by outside competition, and though this is not acute at present, it is essential to keep on introducing further improvements and evolving new designs, patterns and technique if the industry is not to lose its position. The school is well equipped for this sort of work and appears to be tackling these problems. It should therefore be retained as the central school for the province, and in order to help and develop the wood-working industry. Some reorganization of the courses is however necessary.

189. *The Allahabad Carpentry School* with a budget of Rs.58,000 besides Rs.5,000 for commercial operations is also a first class institution. Its work is divided into six courses, viz. (1) an artisan class (2 years), (2) a teachers' training class (2 years), (3) a general wood-working class (3 years), (4) an advanced wood-working class (3 years), (5) a polishing and painting class (3 years), and (6) an upholstery class (3 years). It is thus a replica of the Bareilly school. The school appears to be meeting the growing needs of the eastern part of the province, but it is admitted that Allahabad has no special advantages in connexion with wood-working. The province cannot afford to maintain two first rate institutions for the same industry, and this school is not supplying the needs of any distinct phase of the industry. We suggest, therefore, that the school should be reorganized as a district carpentry school, so designed as to act as a feeder to the Bareilly Institute. In fact the department had already suggested that the teachers' training class and the artisans' class might be closed and that the length of the other courses reduced. It will be seen therefore that independently of the principles that we have enunciated the reduction of the school has been under contemplation for over a year. A reorganization scheme has been prepared for the school with a budget of Rs.17,000 and is given in Appendix XII.

190. *The three district carpentry schools*—Their aim is to impart practical instruction in general wood working and they provide training in joinery and the rudiments of cabinet-making. These schools are not designed primarily to improve the artisans but are definitely vocational schools meant to train young men as reasonably efficient carpenters. The course at each school is for three years and the number of students on the roll is 39 at Naini Tal, 34 at Fyzabad and 22 at Dehra Dun. The details of the courses vary, but the general standard is almost exactly the same as that of the general wood-work course at Allahabad and the cabinet-making and joinery course for non-artisans at Bareilly. The budgetted expenditure for the current year is Rs.10,000 for Naini Tal, Rs.8,000 for Fyzabad and Rs.7,700 for Dehra Dun, excluding the provision for commercial operations. The Naini Tal school caters more for the building than for the furniture trade and teaches the elements of house construction, finishing and costing.

It appears to be meeting the need of a specific phase of the industry and is the only school of its kind in the hills; it may, therefore, be retained. The Fyzabad school was originally started to improve the indigenous industry of *kalamdars* and *singardans*. But as was admitted by the head master nothing has been done so far as these are concerned and instead ordinary cabinet work has been taken up. The number of students at this school has been falling gradually which the head master attributed to the cut in scholarships. The average number of students passing out is only twelve. There would appear to be little justification for the retention of this school. The Dehra Dun school could have done better work because of its proximity to forests and the local requirements for house construction. Actually, however, the number of students passing out is only five per year. The entries in the ex-student's career register were proved to be unreliable. Up to the close of 1932 none of the ex-students had succeeded in finding employment or setting up in business as a carpenter. Instead, men from the Punjab who are very capable and efficient craftsmen are meeting local requirements and it is unlikely that the students trained at this school will ever compete with them. The staff too is unsuitable. This school also should be closed.

*Leather-
Working
and
Tanning
Schools.*

191. The department maintains two leather-working schools, one at Cawnpore and the other at Meerut, and a tanning school at Fatehpur. The respective budget allotments for these schools are Rs.17,000 (+Rs.3,000 for commercial operations), Rs.13,000 (+Rs.2,500 for commercial operations) and Rs.7,500 (+Rs.500 for commercial operations), making a total of Rs.37,500 in addition to Rs.6,000 for commercial operations.

192. *The Leather-Working School, Cawnpore* The Leather Working School, Cawnpore, was started in 1915 with a view to encourage and foster the growth of the leather working industry, the selection of Cawnpore being due to its importance in the leather industry of India. Training is given both to artisans and non-artisans. The number of artisans is, however, less than 15 per cent.; the school is thus definitely a vocational school, the primary object being to train young men to make shoes and other leather goods. There is a single course of two years' duration and instruction is given chiefly in the making and mending

of boots and shoes and other sundry articles, such as suit-cases, and holdalls. Several students of this school have found employment in factories and as instructors in other parts of the country. Being situated at one of the two centres of the industry we think that it should be retained as the central vocational institution for the leather-working industry, and the desirability of providing instruction in certain machine-worked processes should be examined.

193. *The Leather-Working School, Meerut*—This school is a replica of the Cawnpore School, having the same objects and teaching the same subjects. It was started in 1921 at Meerut, since it was felt that there was a sufficient local demand for shoes of western style. It is claimed that the school is supplying trained workers in leather for the western districts of the province as well as the Punjab. It turns out sixteen or seventeen boys every year. According to the information supplied by the institution, over 50 per cent. of the students trained by the school during the last five years have secured employment. It hardly seems worth while maintaining a separate institution at a cost of Rs.13,000 per year when facilities for similar training are already available at Cawnpore. We recommend, therefore, that this school should be closed down, and a certain number of seats reserved at the Cawnpore school for students coming from Meerut and its neighbourhood; they should also be allowed special stipends.

194. *Tanning School Fatehpur*—The tanning school was started in 1927 to impart to village artisans training in modern methods of curing, tanning (both bark and chrome) and finishing, so as to increase the profits of the cottage workers. The course of instruction is for two years. The average number of admissions during the last three years has been twelve and annual passes ten, the total number of men trained so far being 35. This school was meant for artisans, but the average numbers of artisans admitted and passing are seven and three respectively. It is admitted that local tanners do not go to the school "owing to their busy life" and that the staff has to pay occasional visits to their homes, as a result of which "tanners have to a certain extent adopted new methods." It would appear that the local tanning industry has not materially benefited by this school. There is also no likelihood of the ex-students of this school getting remunerative appointment

in tanneries. There is, therefore, little justification for retaining it on its present basis. The tanning industry is being carried on at a number of places in the province, and the school will be able to do much better work for improving tanning in the province if it be converted into one or more instructional classes which may stay in a locality for six to nine months and then pass on to another. As there is no central vocational tanning school, these instructional classes may be attached to the Leather-Working school at Cawnpore. A vocational school for tanners does not appear to be called for at present, as few middle class young men are likely to take to tanning. If and when the need arises, a tanning section can be started at the central leather school.

*Metal-
Working
Schools.*

195. There are two metal working institutions maintained by the department—the Metal-Working School at Aligarh and the Batuk Prasad Khattri Industrial Institute at Benares; the latter is meant for artistic and not plain metal work. The budget provision for the Aligarh school is Rs.17,000 and the gross amount provided for the Benares school is Rs.14,000 out of which Rs.3,000 is received from the Batuk Prasad Khattri Industrial Endowment Trust; the balance is met by the Government.

196. *The Metal-Working School, Aligarh*, was started in 1926 with the object of improving the small metal-working industries of Aligarh, especially lock-making. It was re-organized in 1931 and it appears to have helped in effecting some improvement in the metal working industry of the place. It has two sections—one for mechanics and the other for artisans, the mechanics course lasting for three years and the artisans course for two years. The chief subjects taught in the Mechanics course are (i) moulding and brass foundry work, (ii) forging, (iii) fitting, (iv) lathe work, and (v) polishing. The subjects for the Artisan course are (i) lock-making, (ii) sheet metal and pressed metal work, and (iii) building and furniture fittings. Of the total number of 32 students on the roll in 1931–32, fifteen were artisans. This school is the only institution catering for a specific phase of the industry—namely, ordinary hardware and locks—and, specially with the extension of the hydro-electric system in the Aligarh district, is likely to prove of benefit to the local industry. Moreover, it is the only school where electroplating is taught. We recommend that it should be retained after such strengthening as

may be found necessary. It should pay special attention to experimental work for the benefit of the hardware industry, of which Aligarh is now perhaps the most important centre in India. An obvious and promising line is the manufacture of cheap pressed locks.

197. *The Batuk Prasad Khattri Industrial Institute, Benares*, was started in 1925 as a Government Brassware School, but in 1928 it was amalgamated with a private institution maintained by Rai Bahadur Babu Batuk Prasad Khattri. Its object is to improve the traditional designs and craftsmanship of Benares brass work (line and repoussé) and to impart instruction in the production of work of artistic merit and utility. Its courses were based on those of the School of Arts and Crafts and it imparts instruction only in brass work and drawing; the latter embraces the other artistic crafts of Benares such as embroidery and wood and stone work. There is a single course for five years, but artisans with previous experience are admitted direct to the third year. The instruction imparted falls under three groups :

Group I (Repoussé) : Subjects—(i) Drawing and design, (ii) Repoussé and shape-making, (iii) casting and clay modelling.

Group II (Engraving and Enamelling) : Subjects—(i) Drawing and design, (ii) shape-making, (iii) engraving and enamelling, (iv) casting.

Group III (Metal casting) : Subjects—(i) Drawing and design, (ii) clay modelling, (iii) metal casting with turning and fitting.

198. On an average the school trains five students per year, of whom it is claimed that 80 per cent. belong to the industry. We are, however, doubtful whether the metal workers at Benares take advantage of this school. A comparison of the courses obtaining at this school and at the School of Arts and Crafts shows that almost every item of the prospectus of the Benares school is taught at the School of Arts and Crafts. There is no justification for such duplication; it involves waste of money and effort. We suggest that this institution should be closed and arrangements made at the School of Arts and Crafts to impart instruction in engraving of the Benares style. The introduction of new designs and methods can best be effected by an instructional class or classes attached to the School of Arts and Crafts, which may help the artisans in Benares, Moradabad,

etc. We understand that there will be no difficulties as regards the contribution that Government gets from the Trust as full liberty to close the school has been reserved in the scheme of management to the Trust Committee and to Government.

*The School
of Arts
and Crafts,
Lucknow.*

199. The school was established in 1912 and was "intended to promote the application of both honest craftsmanship and artistic principles to the industries of the province and more specially to the minor industries." In 1918 it was placed on a permanent footing and the following cardinal principles were enunciated :

(1) It should be primarily a seminary of design, the actual manufacture of saleable work being subsidiary and conducted to such extent as is necessary to train the pupils ; in other words the sale room must be only for the disposal of school work and the school must not become a factory.

(2) It was not to be a seminary of drawing masters,

(3) The work must be done by hand and not by machinery.

(4) In addition to the Drawing Teachers' Training class which was opened in 1926 the school has two sections, viz., (i) Fine Arts and (ii) Industrial Arts. In the former instruction is imparted in painting, figure and landscape painting, and portraiture and modelling from life. The latter comprises instruction in :

(i) metal-working, where casting, shape-making, engraving, repoussé and enamelling are taught: there are separate classes for goldsmiths, silver-smiths and other metal work of an ornamental and artistic type ;

(ii) wood-working, class for artistic wood-work in oriental designs ;

(iii) architectural drawing design and decoration chiefly for the facades of buildings ;

(iv) drawing for reproduction for designs for posters, illustrations for books, etc. ; and

(v) a class for lithography.

In addition, a few special students are admitted for short-term courses. The existing budget provision for the school is Rs.79,000.

200. There appear to be two schools of thought as regards this institution. There are some who hold that it is doing good work and that it has acquired a reputation in Indian art. Others contend that it is doing very little to help in industrial development. There is something to be said for each of these views. It must be admitted that the school has not tried to cater sufficiently for the tastes and the needs of the public; it would appear that there has been a tendency to work as if the school were the sole arbiter of what art is and should be. A seminary of design must however try to evolve designs that will not only be artistic but in addition find favour with the public. We consider that one of the most important parts of the work of the school should be the introduction of art into industry; it should introduce new shapes, designs and colouring, suitable for the various industries so as to make the goods more attractive to buyers. For this purpose it should be encouraged to prepare such artistic products as are likely to find a sale. After deducting the receipts from such sales, the net expenditure on the school including the drawing teachers' training class should not be more than about Rs. 60,000, or about Rs. 55,000 if that is excluded. The lithograph printing and process section will have to be closed, as it does not appear to be serving a useful purpose in its present form. The services of some of the teachers, such as the architectural draftsman, the lacquer working instructor, a cabinet making instructor, the assistant gold-smithy instructor, and two clay figure modellers, and also of the museum clerk, may be dispensed with. The possibility of reducing one superior post and one or two drawing masters, by arranging for imparting elementary training in drawing to the different classes together, may be examined. We understand however, that these instructors, though called drawing masters do work of different kinds and, if so, we suggest that their designations should be suitably altered. It may also be possible to reduce the duration of some of the courses by altering the qualification for admission; for instance, admissions to the wood-working course can be restricted to persons who have undergone previous training in carpentry. The school should be reorganized along some such lines so as to reduce its net cost to about Rs.60,000 without impairing its efficiency.

C—Aided Institutions

201. It has been pointed out that generally speaking the industrial and technical schools run by Government have not been able to do all the good that was expected of them. The department is spending a sum of Rs. 81,000 on grants-in-aid to 46 industrial institutions maintained by local bodies or other organizations, details of which will be found in Appendix VIII. These aided institutions have been even less successful in instructing artisans, developing industries or helping middle class young men to set up in business or find employment. Their growth has been somewhat haphazard and it seems that many of them are not really required in the places in which they exist. Further, their supervision leaves much to be desired and the instruction they impart is insufficient. In short, most of them are inefficient and would appear to be serving no particularly useful purpose. And yet grants to the extent of Rs.81,000 a year are given for these institutions.

202. We recommend that these grants-in-aid should be scrutinized from the point of view of their utility. The small grants given to charitable institutions like orphanages may continue, as they are serving a useful purpose. Again, grants should be given to local bodies and other organizations for running instructional classes for artisans, provided they are required in the locality concerned. Similarly, aid may be given for providing special facilities for the industrial education of the depressed classes or of females or for imparting instruction along lines not given at any Government school. In cases, however, in which an aided institution attempts to supply the needs of an industry which are being adequately and more efficiently met by a Government institution, the grant-in-aid to that school may well be withdrawn, unless it is found that such schools supply a real need and are wanted as elementary or feeder schools in addition to those run by Government. We feel that if the grants are revised in the light of these considerations, it will be possible to reduce them by about Rs.24,000 without any detriment to the interests of industrial education, and these savings can be used for better purposes.

203. In short, we suggest that the total sum available for grants-in-aid might be reduced to about Rs.30,000 ; the way in which this amount should be distributed

from time to time among the various institutions should be left to the discretion of the Director of Industries, subject to certain rules to be approved by Government. These rules should clearly enunciate the principles on which grants-in-aid would normally be given for (a) recurring and (b) non-recurring expenditure to institutions seeking Government aid, and the nature and extent of the control that Government should have in the supervision of the grants. The present system, according to which each individual grant to a school requires the approval of the Finance Committee and the specific vote of the Legislative Council on each item, results in a great deal of delay and duplication of work. The provision of a lump grant, to an increase in which the vote of the Council will of course be necessary, would decrease these difficulties to a considerable extent.

D—Miscellaneous

204. One of the difficulties in connexion with industrial and technical schools is that some students do not stay for the full period of their training. This is naturally wasteful and undesirable and would seem to show that the right type of student is not always admitted. It is true that admission to most institutions is at present made on the basis of a competitive examination, but this does not appear to be securing material of the right type. We fear there is a tendency for unsuitable persons to seek admission in the hope of securing some sort of employment thereafter irrespective of their aptitude for the work. We suggest that in the case of each applicant for admission to an industrial school, the opinion of the head of the educational institution where the applicant has received his general education as regards his aptitude for industrial work should be specifically obtained and taken into consideration. Further, when selecting the students it should be made clear to them that they should complete their course and in the case of central schools it should be impressed on them that their object must be to set up in business and go in for the extension course which, we have suggested, should be started.

*Admission
to schools.*

205. At present no fees are charged from U. P. students reading at the various institutions. For non-U. P. students, however, there are varying scales of fees ranging from Rs.10 to Rs.30 per mensem. We consider that if these institutions are really helping to set up boys in trade

Fees.

and industry, they should attract students without any inducement in the shape of remissions of fees. On principle, we see no reason why fees should not be charged from all students, a few deserving ones being given stipends. We recommend that small fees should be levied at suitable rates from all students admitted to industrial and technical institutions maintained by Government. As regards non-U. P. students, a majority of us feel that substantial fees should be charged unless definite arrangements are made with other provincial governments for sharing the cost of maintaining U. P. institutions or for admitting U. P. students to institutions in other provinces free of charge.

*Stipends,
scholar-
ships
and
prizes.*

206. In spite of considerable reductions made in the past two years, Rs.75,000 are being paid for stipends, scholarships and prizes at industrial schools. The provision for stipends, etc., at the Lucknow Technical school is just under Rs.14,000. The School of Arts and Crafts has about 60 stipends ranging in value from Rs.6 to Rs.15 for general students and seven of the value of Rs.25 each meant for artisans. In addition to these, ten scholarships of Rs.15 each and 15 leaving scholarships of Rs.50 each are awarded. The Central Wood-Working Institute, Bareilly, gives 34 stipends of Rs.6, 30 of Rs.8, six of Rs.9 and four of Rs.10 each, besides 22 scholarships of the value of Rs.10 to Rs.15 and 24 leaving scholarships. Detailed information regarding stipends, scholarships and prizes is tabulated in Appendix IX. Whatever justification there may have been in the beginning for awarding stipends and scholarships in large numbers to attract students to these technical and industrial institutions, the time has come for drastic reductions both in regard to the number and value of these stipends and scholarships. The existence of a large number of substantial stipends tends to obscure the real utility of, and the demand for, the training given. We recommend that stipends should, as a rule, be discontinued; only in exceptional cases, should students belonging to the same or the neighbouring districts be eligible for them; they should be utilized primarily to help artisan boys or students of a distant locality in order that the establishment of central institutions may not make it difficult for deserving boys belonging to other districts to go to them. The value of the stipends

should also be adjusted so as to correspond to the increased expenditure that has to be incurred in going to a distant place.

207. Similarly, the values of scholarships should be decreased; in their case what matters is not the amount so much as the fact of the award. The number too may be reduced and suitably regulated on a uniform basis. Different scales should be provided for the first, second and third scholarships respectively. These scholarships should be tenable for one year only and awarded on the results of the entrance and the annual examinations. Again, the leaving scholarships do not appear to serve any particularly useful purpose; they will, however, automatically disappear, if business training is given at the schools in the shape of commercial extension courses; the money spent on leaving scholarships can be utilized for assisting such ex-students to take up these courses with a view to setting up in business on their own. Further, prizes should be awarded not merely on the basis of examinations or for essays, but also for the best novel designs of various articles and appliances in each industry, to be judged in the light of their marketability.

208. The provision of stipends and scholarships is not as important as that of adequate hostel accommodation at the central institutions for students who have to go there from other districts. Adequate hostel facilities in proximity to the institutions concerned are essential. Money, however, should not be wasted on the erection of expensive buildings; it should suffice if the students are accommodated more or less as they would be in their own homes. The cost of these hostels should be kept as low as possible. *Hostels.*

209. If the students can be got to live in hostels they will naturally be able to devote more time to their work. Since they are to be encouraged to set up in their own business, it is essential to get them to work from the beginning along the same lines as they will have to do later. The conditions of work in the school should be assimilated to those under which the respective industries are carried on. In other words, we recommend that the working hours should be increased and the number of holidays decreased. So far, the tendency has been to increase the duration of the course rather than to intensify daily work. We understand that in Switzerland and France boys in technical schools *Working hours.*

work, broadly speaking, ten to twelve hours per day. Climatic conditions would no doubt prevent work for such long periods in India, but we would emphasize the need for increasing the number of working hours in cases in which both theoretical and practical instruction is given : men in industry and trade have to work about eight to ten hours per day and there is no reason why the students under training should not do nearly the same.

*Night
classes.*

210. At present night classes exist at the technical schools, the School of Arts and Crafts and the leather-working schools. These classes were intended to cater for the employees and apprentice mechanics of the railway workshops, artisan goldsmiths and leather-workers respectively. In the case of the technical schools they are fulfilling this purpose to some extent and should therefore continue. Hardly any artisans are said to have attended the night classes at the leather schools ; these classes should therefore be closed. The night class maintained at the School of Arts and Crafts—the Jewellery class—is attended by sons of goldsmiths, who could certainly attend the regular day classes ; hence this class should also be abolished. The question of maintaining night classes at other schools must be decided on the merits of each case, and no hard and fast rule can be laid down in this respect.

*Teaching
staff.*

211. The qualifications and aptitude of some—perhaps even many—of the existing instructors leave much to be desired. Some possess theoretical qualifications but are out of touch with recent developments and continue to follow obsolete methods and appliances. Others have no practical aptitude themselves or have lost it through lack of practice, and cannot therefore impart adequate practical training to the students. Very few of them remain in constant touch with the industries and trade with which they are concerned. We recommend that teachers, especially those intended for practical instruction, should, if possible, be obtained on deputation from the industry concerned for a fixed period and then sent back to the industry. Again, the existing teachers should be sent out from time to time to the centres of the industries to get into touch with them and study the needs of the artisans at first hand. Further, some teachers should be compelled to go on study leave every few years so as to bring their knowledge up-to-date, particularly as regards commercial operations.

212. The commercial operations carried on by some institutions have been objected to in some quarters on the ground that they compete—often unfairly—with private enterprise. They are, however, only intended to train the students in a part of their regular course of instruction. We realize that the department should steer clear of any activity that may injure private enterprise. At the same time, it must not be forgotten that industrial education cannot be imparted merely by lectures in class rooms; it has to be essentially practical and designed to fit the boys to set up in trade. The employment of outside labour is inevitable for processes which cannot be carried on by the permanent staff or by the students. Moreover, articles have to be made to train the boys and these can hardly be thrown away; they must be sold in the market for whatever they may fetch. The policy has been recently enunciated somewhat as follows and we do not think it needs any alteration :

Commercial operations.

(1) Articles manufactured during the course of training—which should include “commercial operations”—should, in the first instance, be utilized for Government purposes, and only when they cannot be so utilized should they be made available for sale to the public.

(2) The institutions should manufacture only such articles as will enable the students to acquire useful—even if not indispensable training. For this purpose, it will be useful if lists of articles suitable for manufacture at each institution are carefully prepared beforehand in the light of the requirements of the province.

(3) No outside labour should be employed for manufacturing articles for stock or for complying with orders, except where—and only to the extent to which—it is necessary for the training of students and involves such operations as cannot be carried on by the permanent staff or the students.

(4) The institutions should not canvass for orders or tender for supply except in accordance with the above-mentioned principles.

(5) These principles will however not apply to commercial extension courses.

213. Every school has an advisory committee whose functions are to advise on all new expenditure in respect of any single item exceeding Rs.2,000 non-recurring

Advisory bodies.

and Rs.300 per annum recurring, and on courses of instruction, curricula, scholarships and similar matters. They are, however, not concerned with matters of internal discipline affecting the staff or the students nor with questions of individual appointments. There is no uniformity as regards their composition. Broadly speaking, however, about half of the total number of these committees have the district officer or his nominee or some other official as chairman, though the policy has been to reduce the official element. In other cases the local members of the Legislative Council or the chairmen of the district or municipal boards concerned are the chairmen. Most of the advisory committees have on them representatives of the trade and the local M. L.C's, while about half of them have representatives of local (district or municipal) boards. A certain proportion of the members possess technical qualifications or training, but generally speaking, non-technical men preponderate; this is due to the desire to have local persons of influence on these committees so as to be in touch with the requirements of the public. We are of opinion that these advisory committees have performed a useful function and should continue, but we feel that there is need for instilling greater enthusiasm among the members. Regular meetings of these committees should be called and members should be encouraged to pay surprise visits to the schools and to record inspection notes, remarking specially about the popularity and the utility of the institution and its courses.

*Revision
of budgets.*

214. The various recommendations made by us above will involve changes in the respective budgets. Opportunity should be taken of examining the necessity for each item and the possibility of reducing the provision relating thereto. In this connexion we may also remark that in their existing form some of the budgets fail to present the facts correctly. Changes (e.g., of designations or duties) have sometimes not been carried out in the budgets. A few of the designations fail to bring out the salient duties of the incumbents. In short, there is an embarrassing lack of system, and the correct position is not always reflected in the budgets. We recommend a systematic overhaul of budgets with the assistance of the Accounts Officer proposed by us.

*Foreign
scholar-
ships.*

215. Before closing we would like to touch on the question of foreign scholarships as they practically constitute an extension of the facilities for industrial

training provided at State expense. The award of such scholarships to deserving students for suitable subjects is much cheaper to the State than the maintenance of numerous institutions to train a few students per year who cannot possibly compare in quality and equipment with those trained abroad. Of recent years only one long-term and one short-term scholarship have been awarded, though formerly the number was larger. (The statements in Appendices X and XI give details about these scholarships and show how and where the scholars are employed.) We recommend that the number of long-term as well as short-term scholarships should be increased. As regards their value, however, we hold that there is scope for reduction. The object should be to meet only a part, and not the whole, of the scholars' expenses. We suggest that three long-term scholarships of the value of £125 to £150 per year (varying according to the circumstances of each case) and six short-term scholarships of Rs.2,000 each should be awarded per year. The long-term scholars should continue to get the cost of passage, tuition fees and legitimate tour expenses. As regards the subjects, we feel that the scholarships should be primarily awarded for those industries which are selected for intensive development. For the long-term scholarships in particular we recommend that for the next two or three years at least two of the three scholarships should be awarded for instruction in sugar engineering as there is a dearth of competent sugar engineers for the numerous factories that are springing up. In fact, we would suggest that a tentative programme of scholarships showing the subjects for which they will be awarded should be drawn up for a period of two or three years in advance. Barring exceptional cases, short-term scholarships should, as at present, be awarded to men who are already in the industry or trade concerned, provided suitable arrangements can be made for their training. We also recommend that scholarships should be awarded to U. P. students for practical training in other parts of the country; the value of such scholarships need not be more than about Rs. 25 to 40 per month.

E—Conclusions

216. We may now sum up the more important of our conclusions, suggestions and recommendations in the present chapter. The experiments and researches carried

on at technical and industrial institutions and the expert advice given by their staff, have no doubt been of some use to the industries concerned. But, broadly speaking, the present system of training has not helped materially in the development of industries in the province. Schools intended for artisans are rarely used by them. Middle-class youths trained at these schools seldom feel confident enough to set up on their own; many fail to find employment as they do not meet the actual requirements of the industrial world. These unemployed technically-trained young men are likely to be a more serious problem than those possessing general education who are unemployed. The number of men trained should be regulated according to the extent to which they can be absorbed in the industries concerned, and the design and plan of work of each school should be adapted to the requirements of the industry served by it. Educated young men must be given sound vocational training which would enable them to set up in business or find employment; training at second-rate institutions will not help them. Hence there should be one fully equipped first class central school for each industry or phase of industry, but when there is already a similar institution in another province, inter-provincial co-ordination should be secured so as to avoid duplication and extra cost. Each such school should be in close touch with the industry concerned and turn out students who can be readily absorbed therein, by giving them a training of the type needed by, and designed to qualify them for, the industry. It should also have a clear cut programme of research carefully regulated according to the changing needs of the industry. It should in addition have a commercial extension course for a year or two, where ex-students can be taught and helped to carry on commercial operations on their own, strictly on business lines under adequate guidance from the school authorities.

217. For the training of artisans one or more out-lying instructional classes should be attached to the central institution for the industry in question. Each such class should be in charge of an expert instructor—a real *ustad* who would settle down among the artisans for periods ranging between six months to two or three years according to the needs of the particular industry, improve their technique, introduce better methods and designs and then pass on to another centre and do the same

there. The heads of the central schools concerned should be responsible for the technical and administrative supervision of these classes. Artisan-class boys would normally receive training in the first instance from their relations, but after they have reached a certain degree of proficiency in manufacture, they would be taught improved designs and technique at the instructional classes. Midway between the central vocational school and these outlying instructional classes, there may be a certain number of elementary schools for the sons of artisans and middle-class boys, which may give instruction of a preliminary nature.

218. The aided institutions have been even less successful than Government schools in achieving the true objects of industrial education. Efforts should be made to get them reorganized so as to conform to this plan and become either elementary schools or instructional classes. Special provision may be made at some of the schools—Government as well as aided—for giving instruction to females and members of the depressed classes. Manual training of a comprehensive type might be included in the courses of general educational institutions so as to give an industrial bias to the students, and those who show a special aptitude for such work there should be encouraged to join the corresponding vocational school. The central schools should have adequate hostel accommodation and give stipends to persons from the remote parts of the province, so that they may be able to join these schools. For still higher technical and industrial training, foreign scholarships, both short-term and long-term, should be awarded ; their numbers should be raised but amounts reduced.

219. In short, there should be three types of schools, viz., (1) instructional classes for artisans, (2) elementary or feeder schools for artisan-class boys and middle-class youths, and (3) central vocational schools for enabling young men to set up in business or find employment, supplemented by commercial extension courses, stipends for students from other parts of the province and foreign scholarships for higher training.

220. In accordance with these principles, we suggest that the Technical school at Lucknow and the Metal Working school at Aligarh should be strengthened ; the three textile institutions, viz., The Central Weaving Institute, Benares, the Dyeing and Printing and the Textile schools at Cawnpore, should be combined into

a single first class textile institute at Cawnpore ; the Weaving and Printing school at Bulandshahr and the model weaving schools (except perhaps the one at Almora which may continue as it is for woollens) should be converted into a suitable number of instructional classes ; the Carpentry school at Allahabad and perhaps also the Naini Tal one should be run as feeder schools ; those at Dehra Dun and Fyzabad should be closed. The Leather Working school at Meerut should be abolished and the Tanning school at Fatehpur replaced by one or more instructional classes. The Batuk Prasad Khattri Industrial Institute may also be closed, as similar work is being done at the School of Arts and Crafts, and the Technical school at Jhansi may be abolished. The School of Arts and Crafts needs to be reorganized.

221. If the system of organization suggested by us is adopted, the net result will be that only four or five of the existing schools will be closed down, three institutions will be combined into one, the scope of training at one will be reduced and the system of work in seven or eight will be altered and they will be replaced by about a dozen instructional classes.

222. Reorganization along these lines will, we consider, prove beneficial to artisans, to the industries and to the young men trained. The number of students trained at industrial institutions who are able to secure employment or set up in business or otherwise improve their prospects will not decrease ; the total number of students on the rolls may go down, but the number who will receive sound practical training is expected to increase.

CHAPTER VIII

ORGANIZATION OF THE DEPARTMENT

223. At present the direction staff of the Industries Department consists of (1) a Director, (2) a Deputy Director, (3) an Assistant Director (called Deputy Director of Industries for personal reasons), (4) an Assistant Stores Purchase Officer and (5), (6) and (7) three Divisional Superintendents. Besides these there are (8) a Business Manager of the Emporium and (9) a Statistician who is attached to the Director of Industries in his capacity of Director of Statistics. There are two sanctioned posts of heads of the oil and the sugar sections of the Harcourt Butler Technological Institute, who work in an unofficial manner as the Oil and Sugar Experts to the department respectively; they have, however, no clearly defined administrative functions. Similarly the head of the general research section of the Institute works as the Industrial Chemist to the Government. Lastly, there are the principals or heads and instructors at a number of industrial schools who are also experts in their own line, but who in common with the heads of sections at the Harcourt Butler Technological Institute do not at present perform any administrative or general duties outside their schools. The qualifications and nature of the duties of each of these officers may be summarized as follows :

*Existing
arrange-
ments.*

(i) *Director*—Under the existing rules Government have full discretion to appoint as Director a member of the Indian Civil Service, of the Provincial Civil Service or of any other service, or an outsider from trade and industry. The present incumbent is an I. C. S. officer; ever since he joined (December 1932) he has been in charge of the Co-operative Department as well. He is also working as the Principal of the Harcourt Butler Technological Institute, Stores Purchase Officer and Director of Statistics.

(ii) *Deputy Director (E)*—The real post of Deputy Director is meant for the officer in charge of industrial and technical education, which is the only post of Deputy Director left since the abolition of the post of Deputy Director in charge of stores work with effect from November, 1931. The permanent incumbent

of this post is Mr. R. C. Srivastava, a technical officer, in the scale of Rs.1,250—50—1,500. Since his deputation as Sugar Technologist to the Imperial Council of Agricultural Research, Mr. M. B. Hudlikar, chemist and leather expert with some engineering experience is officiating on Rs.900 in the scale of Rs.800—50—1,250. He used to be the Head of the Leather section of the Technological Institute, but that section has now been abolished. The duties of this post are :

(a) to inspect first class institutions and scrutinize their requirements, etc. ;

(b) to exercise general control over second class institutions and deal with the inspection reports and audit inspection notes relating to them ;

(c) to arrange for the holding of examinations relating to all schools and declare the results ;

(d) to be in charge of the education and accounts section of the office and also of the accounts work connected with schools ;

(e) to work as Controller of the Emporium.

(iii) *Assistant Director*.—The post of Assistant Director, designated as Deputy Director (Special) for personal reasons, used to be held by an officer having general administrative experience and special aptitude for the kind of work involved, and derived as a rule from the United Provinces Civil Service on grade pay plus a special pay of Rs.100 ; since the last incumbent of the post left in April, 1931, it has been in abeyance. The duties of the post are being carried on by Mr. Duke, Head of the Oil section of the Institute. They are *at present* :

(a) to be in charge of the Industries section of the office including applications for loans and grants,

(b) to deal with industrial inquiries,

(c) to work as Secretary of the Board of Industries,

(d) to do other miscellaneous work such as that relating to the Technological Institute.

(iv) *Divisional Superintendents*.—The three divisional superintendents are non-technical men, although they have acquired some experience of the industrial problems of the province by over 10 years' association with the department. A brief history of these posts may

be given here. The first appointments of divisional superintendents were made in 1921, when ten such officers were appointed for carrying out industrial surveys. On the completion of that work in 1924 their number was reduced to six and they were put on organization work. In February, 1932, their number was further reduced to three as a result of the present retrenchment campaign. One of them now remains attached to the office of the Director and does only headquarters work. The principal duties attached to these posts are :

(a) General industrial inquiries in order to collect industrial and commercial information whether for the department or for the local and other provincial Governments or the Government of India.

(b) Investigation into applications for loans and grants.

(c) Inspection and other work connected with second class and aided institutions. This means four inspections per year of the sixteen Government schools, and two per year of the forty-six aided schools, scrutinizing their accounts and furnishing utilization certificates for the grants received by the latter, drawing bills for those Government institutions whose heads are non-gazetted officers, etc.

(d) Doing general work for the department, with special regard to the development of cottage industries and acting as media of communication between the department and the public.

Some of these duties, especially those relating to trade inquiries and watching the development of industries, had to be curtailed owing to the reduction of their number to three. The sanctioned scale for these posts, which are of gazetted status, is Rs. 200—20—300—25—450, and the present incumbents are all drawing the maximum.

(v) *The Assistant Stores Purchase Officer*—The post is held by Mr. B. P. Agarwal, an ex-student of the oil section of the Technological Institute. He possesses some commercial experience of engineering. He is drawing Rs.400 in the scale of Rs.300—20—500. He is in charge of the day-to-day work, including the routine correspondence, of the Stores Purchase department.

(vi) *The Business Manager* of the Emporium is a non-gazetted officer in the scale of Rs.200—20—300 plus

a certain commission on sales. The present incumbent, Mr. Barve, who is drawing the maximum of the scale was drawn from business and possesses some practical experience of trade both in India and abroad. He is posted at Lucknow in charge of the Emporium, and works directly under the "control" of the Deputy Director (Education). His main function is to try and develop markets for artware.

(vii) *The Statistician*—This post is a temporary one of gazetted status; at present it is on a fixed pay of Rs.300. The statistician works under the Director of Industries in his capacity as *ex officio* Director of Statistics and collects and collates statistics or undertakes economic enquiries on behalf of all Departments of Government. The present plan of work and functions of the office of which he is in charge are not limited to the collection and compilation of industrial or commercial statistics as such.

224. The above survey brings out several special features of the existing organization of the department. To begin with, there appear to be too many superior *administrative* posts, while there is only one of a subordinate rank corresponding to those of inspectors in the Co-operative Department and the subordinate agricultural service. An important link of the chain is thus missing. Secondly, the trade aspect, which in our opinion constitutes the more pressing need of both factory-scale and cottage industries, is not receiving sufficient attention. Though trade problems are of great importance, the department, broadly speaking, lacks the resources with which it can handle them and can do very little for the benefit of trade. Thirdly, there is a certain amount of duplication of work with the result that the Head of the department owing to his numerous other responsibilities does not find enough time to devote to the real problems of the department. Moreover, certain important industries cannot be properly handled by any officer in the department, e.g., glass, industrial engineering in general, etc. We also note that a good deal of the time of officers of general education and equipment is being spent in doing accounts work, which requires special training and qualifications; budget, accounts and finance work accounts for a good deal of the Director's own time besides that of the Deputy Director.

225. We recommend that the direction staff of the department should consist of (i) the Director, (ii) and (iii) two Deputy Directors—one broadly speaking, for engineering and education and the other for industries and trade, (iv) an Assistant Director of the status of the present Divisional Superintendents ; he should be made directly responsible for the development of cottage industries, (v) another Assistant Director (the present Assistant Stores Purchase Officer) in charge of stores, (vi) a third Assistant Director for accounts and allied work, (vii) and (viii) at least two Inspectors in place of the present Divisional Superintendents, and (ix) the Business Manager, who should continue to be in charge of the Emporium. The reasons for each of these proposals are explained in the following paragraphs. But we may make it clear that this skeleton staff can hardly suffice for the great task of the development of industries ; the Industries Department will have to work in close co-operation with other departments, especially Revenue, Co-operative, Agriculture, Irrigation and Education. Moreover, the qualifications suggested by us for any particular post should not necessarily be strictly applied. All that is required is to provide that the organization of the headquarters and expert staff is so planned as to secure experience of (i) administration, (ii) industrial engineering, (iii) various phases of technology, and (iv) trade and commerce, especially in so far as they affect industries.

*Staff
suggested.*

226. Government have at present full discretion in regard to the sources from which selection for the appointment of a Director may be made, and in our opinion the existing practice may continue. No doubt Government will look to the aptitude of the person to be selected for handling industrial and trade problems such as come up before the department and for dealing with the problems of finance. Unfortunately there have been too many changes in the incumbents of this post in the past ; we suggest that an officer appointed as Director should, ordinarily, hold charge of his post for a minimum period of three years.

*The
Director.*

Since December, 1932, the posts of Registrar, Co-operative Societies and Director of Industries have been combined experimentally. In view of the fact that the Co-operative Department needs a great deal of directional guidance specially in the present

difficult times and in the light of the prospective work in front of the Department of Industries, we recommend that the Director of Industries should be relieved of the charge of the Co-operative Department as soon as practicable, so that he may be able to devote his undivided attention to the problems of industrial and trade development. Further, with a view to keep the commercial aspect of the work pointedly before the department we suggest that it should be called the Department of Industries and Trade, and its Head the "Director of Industries and Trade."

*Deputy
Director,
Engineering and
Education.*

227. We are of opinion that the department ought to have an industrial engineer on its staff; there is none such at present and one is needed. The creation of such a post was proposed some five years ago but it could not be sanctioned. There are three technical schools giving instruction in mechanical and electrical engineering; a good deal of the purchases made by the Stores Purchase Department for the Public Works Department, which is one of the largest consuming departments, and for some others require a knowledge of engineering; lastly, an engineer alone can, especially in connexion with the hydro-electric power now available, be of assistance to most of the major and some of the minor industries. We therefore suggest that one Deputy Director might be a man possessing engineering qualifications such as would be of use to industries. This officer would be in charge of technical and industrial institutions, and of industries based on engineering and may be known as Deputy Director of Industries (E and E), i.e. Deputy Director of Industries in charge of engineering and education. If, as suggested by us, he is relieved of accounts work, he should be able to find sufficient time for both duties.

*Deputy
Director
(Trade).*

228. Again, an officer possessing trade and commercial experience appears to us indispensable; we therefore suggest that another Deputy Director should be appointed who would be a commercial expert. He will be in charge of the numerous industrial inquiries, grants, loans, foreign scholarships, exhibitions, commercial intelligence and other trade questions. In other words, he will be in charge of the commercial development of industries as such including control of the Emporium; for engineering, chemical and other technical problems he will be

helped by his colleagues. He may also act as Secretary to the Board of Industries. He should be least concerned with ordinary routine duties and should be constantly on the lookout for ways in which he can help in the development of industries. He should visit important industrial centres, see factories and cottage workers and study their methods, take notes of their difficulties and how the department and its experts can help in solving them, arrange for research and experimental work necessary for solving the problems that come to his notice, study literature relating to the various industries, and above all prepare a well-thought-out programme for helping to develop each industry, paying particular attention to trade and marketing. He may be known as the Deputy Director of Industries (Trade).

229. The Director and his two Deputies should have the assistance of three Assistant Directors of the status of class II of the provincial services in the scale of Rs. 200—500. One of them should be in charge of minor and cottage industries and should tour the various centres of the industries and study their problems, e.g., where raw material can be best found for them, whether and where a market for their products exists, what changes in the designs are required to suit the prevailing tastes, and so on. He should thus be a liason officer between the cottage workers and the minor industrialists as well as the public on the one hand and the department on the other. He should have no administrative functions in respect of the Emporium, but he may assist in the organization of exhibitions and in supervising the execution of orders placed by the Emporium.

*Assistant
Directors
of Industries.*

230. The second Assistant Director should be an experienced accounts officer who can work also as financial and budget adviser. A great deal of the time of the Director, a highly paid Deputy Director and of the three Divisional Superintendents is, at present, spent in trying to do budget and accounts work, especially that connected with educational institutions. An officer possessing a knowledge of budget and accounts could do the work in much less time and more efficiently. We find that the need for an accounts officer has been brought to the notice of Government by successive Directors since December, 1930. In 1931, Government recognized the advisability of such an appointment but the proposal had to be dropped owing mainly to financial

*Accounts
Officer.*

stringency. We strongly recommend that an Accounts Officer of the grade of an Assistant Director should be appointed as soon as possible. He should relieve the Director and his Deputy of all work relating to accounts, and should make as far as possible one annual inspection of every aided school, and two of all Government institutions. We see no reason why such an officer cannot be trained to develop some administrative sense and thus prevent his inspections from becoming mere routine audit notes.

*Assistant
Director
in charge
of Stores.*

231. The third Assistant Director should be in charge of the Stores Purchase Section. We do not contemplate the creation of a new post and our recommendation only amounts to designating the present Assistant Stores Purchase Officer as Assistant Director in charge of Stores. The post of the Stores Purchase Officer has been abolished and his duties have devolved on the Director of Industries. In order to prevent the latter from being saddled with routine duties, the scope of the duties of the Assistant Stores Purchase Officer needs expansion. This officer should therefore be entrusted with some larger functions than he performs at present. The Assistant Director in charge of stores should have direct access to the Director so as to avoid duplication of work. The disposal of tenders, the signing of contracts and agreements, and almost all correspondence, except (a) important correspondence with Government and (b) important cases of dispute or disagreement with the consuming officers, the trade or the public, should be disposed of by him on his own responsibility. If, however, it is found that even then the Director's work is too much, there need be no objection to certain specified powers being delegated to one of the Deputy Directors.

*Subordi-
nate
Executive
Staff.*

232. Some staff is needed for performing certain miscellaneous duties, such as (a) the general inspection and supervision of smaller schools, instructional classes and aided institutions, (b) the collection of industrial and commercial information, (c) surveying the requirements of cottage industrialists and other miscellaneous work, and, in general, (d) acting as liaison officers between the department and the public. These duties do not, in our opinion, require officers of the status of the present divisional superintendents. Men of a subordinate status will perform these functions more willingly and actively than persons who cannot normally be expected to lose

sight of their gazetted status. Suitable men (graduates in Economics or Science) can nowadays be had on salaries ranging from Rs.100 to Rs.150. We, therefore, recommend that the posts of divisional superintendents may be abolished and replaced by a suitable number of posts of Industrial Inspectors or "Surveyors." Their duties will be partly to inspect and supervise the smaller schools and instructional classes, paying surprise visits where necessary, and partly to investigate and survey the problems of trades and industries.

It is necessary to make arrangements for bringing up-to-date the industrial surveys for each district prepared in 1921-24 and to keep them so. Similarly the monographs on certain industries, which were prepared about a generation ago, are out of date and need revision, and steps should be taken to see that they are brought and kept up-to-date. Further, there is at present very little information about markets and where particular types of goods are sold and to what extent and at what prices; a survey of consumption is, therefore, also necessary. All this work should be done by the proposed Inspectors during the course of their tours under the direction of the Assistant Director in charge of cottage industries and in co-operation, where possible, with the staff of other departments. For the revision of the surveys for the different industries, however, we feel that extra men possessing some knowledge of the industry concerned will have to be appointed. They may be engaged on short contracts for this purpose. Such revision need be undertaken in the case of only a few industries to begin with; the extra cost will not be heavy.

234. The Business Manager should continue to be in charge of the Emporium under the general control of the Deputy Director (Trade), but he should have adequate discretion and freedom of action. He must tour about and canvass orders and try to establish agencies in other provinces as well as abroad. He should continue to get commission for the work that he does; but the advisability of reducing its amount and raising the salary and status of the post may perhaps be examined, especially if it is decided to allow some commission to the staff also. The Superintending Craftsman of the School of Arts and Crafts should be made an *ex officio* adviser to the Emporium as far as the introduction of better designs

*Emporium
Staff.*

and patterns is concerned, but he should have no administrative functions in relation to the Emporium.

Statistician.

235. We understand that a programme of work for the Statistician is under preparation. There is considerable work in connexion with industrial and commercial information in the compilation of which the Statistician can be of assistance to the department. The Director has to attend to many inquiries relating to industrial and trade matters ; the Statistician should assist him with advice about the systematic compilation and the regular maintenance of statistics about various industries—dealing with production, marketing, consumption and so on—so as to enable useful and up-to-date information to be supplied to inquirers. Moreover, a close study of the effects of the recent legislation on India's trade and industries and periodical reports thereon to the Government of India will be one of the important new duties to be discharged by the department. The Statistician and the Surveyors should be able to give material assistance to the department in this direction as well.

Instructional and ministerial staff.

236. At present the pay of the instructional staff at the different institutions depends on the individual post held and there is no general grade to which they conform. As a result, transfers from one place to another are not feasible. Thus a drawing master—say, at the Technical School, Jhansi,—cannot be transferred to a similar post at Gorakhpur, because the grades differ. We recommend that the instructional staff should be brought on to some sort of a general cadre on a provincial basis, so that transfers may be possible. This should apply not only to future incumbents but also, if possible, to the present ones. Similarly the clerical posts at the various institutions should be brought on to some uniform scale and, at any rate, be made interchangeable. In the case of certain institutions and posts a feeling exists that it is hard on the existing staff that they get no pension nor the benefits of a contributory provident fund. The extension of pensionary rights may cost more than twice as much as a contributory provident fund in which one anna in the rupee is contributed by Government. Hence, we think that, when funds permit, the benefits of a contributory provident fund may be extended to the existing as well as the future staff of the department.

237. In our opinion all appointments in the Industries Department other than ministerial and menial should, as a rule, be made on a contract basis. The reason for this is that the Industries Department differs from other departments in that the nature of the work in it has a closer resemblance to business and trade than to the usual stereotyped methods prevailing elsewhere. What is needed here is not so much a capacity to follow a set course of action according to "precedent and rule," as ability constantly to evolve new ideas and keep in touch with changing business conditions, methods and needs; hence it is advisable that instructors should go back after some time to the industry or trade in which they have specialized. Moreover, in the security provided by the service rules of Government, there is not sufficient incentive for introducing modern ideas and methods. Service on contract, on the other hand, makes the employee feel that his continuance will depend upon the results shown, and, therefore, should conduce to better work. Care should, however, be taken to see that contracts are not renewed as a matter of course and that the men are treated more as persons on deputation with Government from a particular industry for a certain period than permanent employees of Government.

*Nature
of service
in the
depart-
ment.*

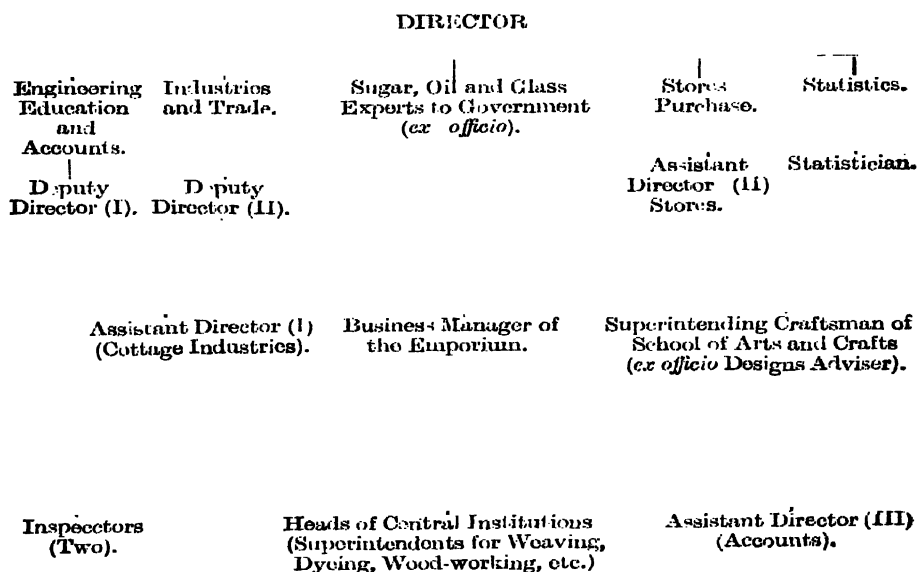
238. Another matter to which we would like to invite attention is the desirability of larger delegations of powers and of a re-shuffling of duties with a view to reduce the amount of routine work that has to be done by officers who should devote their time to direction and development instead. The Director can be relieved of a certain amount of such work, though he must continue to exercise general supervision. The Deputy Directors might be authorized to correspond direct with Government in respect of certain routine matters, and given some of the financial powers of heads of departments, so that the Director may be relieved of routine correspondence. Similarly, there is scope for delegation of powers to heads of technical and industrial institutions. They may be authorized to grant leave to the staff and pass their travelling allowance bills, etc. and if possible to reappropriate within their own budgets. We cannot go into details but suggest that delegations of routine duties should be made wherever they are possible, so that the Director and his deputies may be able to do more touring and look to the true development of industries instead of being tied down to desk-work.

*Need for
decentra-
lization
of
functions.*

Summary.

239. To sum up, the Director, who may be called the Director of Industries and Trade, should be relieved of the charge of the Co-operative Department and of his routine duties in order that he may have sufficient time to look to the proper direction and development of the department under his charge. He will have to exercise general supervision over the whole work and carry out substantive duties relating to the purchase of stores and to a smaller extent, the development of minor and cottage industries and commercial and statistical and "economic research" work. He should have under him two Deputy Directors, three Assistant Directors of the status of the present Divisional Superintendents (which posts should be abolished), and some Inspectors or Surveyors belonging to the subordinate service. One Deputy Director should be an Industrial Engineer and also be in charge of education industries based on engineering, and some miscellaneous work. The other should have experience of the commercial side of industries and should be responsible for the development of trade, industrial inquiries, and commercial matters. Of the Assistant Directors, one should have direct charge of minor and cottage industries; one should be a trained accounts officer and besides being a financial adviser to the department should inspect all educational institutions—state and aided; and the third (corresponding to the present Assistant Stores Purchase Officer) should be in charge of the Stores Purchase section with direct access to the Director. The Inspectors or Surveyors should perform the general executive work of the department, specially the collection of industrial and commercial information and inspection of elementary schools, instructional classes and aided schools. For the revision of surveys for particular industries additional men on short-term contracts should be appointed. The heads of the central institutions should, as described in Chapter II, also function as Superintendents in charge of the technical supervision of the instructional classes and feeder schools attached to their institutions and some of them may also be called upon to take charge of specified industries on lines similar to those of the experts. The Business Manager of the Emporium should have adequate administrative powers and should work under the supervision of the Deputy Director (Trade) as Controller. The Superintending Craftsman of the School of Arts and Crafts should work as Designs Adviser to the Emporium, in so far as technical

assistance in the introduction of designs and the encouragement of crafts is concerned. The Statistician should have a carefully drawn up plan of work, and he and his office may be merged in the staff of the Industries Department. Except in the case of menials and ministerials, service in the department should, as a rule, be on a contract basis. The instructional and ministerial staff should be brought on a general provincial cadre, and the benefits of a contributory provident fund should be extended to the existing as well as the future incumbents when finances permit. The following diagram represents the scheme of organization of the department proposed by us :



CHAPTER IX

SUMMARY AND FINANCIAL EFFECT

240. In conclusion we may briefly set forth the general results of our investigations and the financial effects of our proposals. (A detailed summary of the recommendations has been given in Appendix XV.) The Department of Industries has been making steady progress, has to its credit some achievements in connexion with the industrial surveys, giving expert advice and devising solutions for specific problems of some industrialists and encouraging local industries by its store purchase policy. Nevertheless it cannot be denied that it has not been able to achieve any striking developments in industrial matters. It appears to us that technical and industrial education has largely monopolised its attention, while other aspects of industrial development have suffered in comparison. The resources of the department are limited and the problems and requirements of industries manifold; it is, therefore, necessary not to attempt too many activities at one time, but there should be a definite programme of work for say a period of five years which aims at a systematic co-relation of the various branches of the work in order to achieve certain definite objects. We recommend that the general policy and lines of work of the department should be revised and that it should for the present concentrate the greater part of its activities on three items, viz :

(1) the all-round development of the sugar, oil and glass industries (and according to Messrs. Shah and Duke also of leather),

(2) the marketing of the products of selected minor and cottage industries,

(3) helping educated young men of the middle classes to set up in industry or business or failing that to find employment therein.

241. As regards the first objective, viz., the development of two or three large-scale industries, it is necessary to have an expert in each of these lines attached to the department and working at the Technological Institute; he should carry on research on the problems

of the industry and give expert advice to all concerned, especially as regards the technical and manufacturing sides of the business. Arrangements must also be made for the prompt supply to these industries of all relevant commercial information. Effective assistance should be given to these industries in finding a solution of their biggest problem, viz., marketing, for which a Deputy Director with commercial experience is necessary ; a central selling organization may be required for co-ordinating the various interests involved. Financial aid if and when required may also be given by the establishment of a financial corporation or helping an existing commercial bank to start an industrial branch. Lastly, technological and engineering staff suitable for the industry and meeting its requirements must continue to be trained and made available.

242. For the marketing of the products of minor and cottage industries that are selected for intensive work it is essential to have a survey in the first instance both as regards what is and can be produced and what is consumed and where. Existing markets must be developed and new ones created by the state carrying on publicity and propaganda activities on their behalf, by the issue of advertisements, the publication of catalogues, helping at exhibitions, appointing commercial travellers and establishing a commercial museum which would keep samples and obtain orders on their basis and pass them on to the manufacturers and dealers, thus bringing producers and consumers into touch with each other ; suitable arrangements should be made at the same time for improving the technique of manufacture with the aid of instructional classes for artisans, for standardizing the goods produced, and for having local agents to see that the articles made are up to the requisite quality and standard. In the case of handloom textiles to begin with, a sole buying agent may be appointed experimentally who would be under an obligation to purchase the whole of the cloth produced by an organized portion of the industry, e.g., that manufactured by co-operative societies of weavers. For artware industries, foreign markets have to be cultivated and standardization is not always practicable ; hence, it is advisable to have a state-owned emporium (instead of merely a commercial museum), which would buy these articles and supply them to order, keeping the minimum stocks possible. It should try to develop both

Indian and foreign trade, but pay particular attention to the latter, for which purpose a suitable officer should be sent abroad to establish local connexions and set up agencies where possible in important centres, and articles should be supplied to them at reasonable prices. While developing the demand, care must be taken to see that the supply is also properly organized, that improved shapes and designs are introduced and that all the goods supplied by or through the Emporium are of good quality and superior workmanship, so that it may acquire a reputation for quality and dependability. A special Assistant Director may be put in charge of cottage industries who should make a proper survey of the possibilities of each cottage industry and suggest the lines along which its marketing problems can best be solved.

243. In order to help educated young men of the middle classes to set up in business or find employment, it is essential that the vocational schools at which they are trained should be first-rate institutions which ascertain the exact needs of the industry and then cater for the same; it is better to have one good central institution than to have two or three second-rate ones. Hence we recommend one central vocational school for each industry or phase of industry. In addition, there may be a small number of elementary schools for artisan boys or middle class young men to give them a certain amount of preliminary training. Arrangements must be made at each central school for commercial extension courses where ex-students can learn to carry on their own business under proper supervision and guidance from the school authorities, so that they may set up independently thereafter in suitable localities on their own. If the policy in relation to technical and industrial education is revised along these lines, we estimate that only three or four schools will be closed down, while a number will be reorganized so as to cater for the needs of artisans for whom they were really intended; the cost of education will thus be reduced considerably, while the number of young men who are trained and who set up in business or find suitable employment may increase.

244. Apart from our suggestions in connexion with these three major lines of work for the department during the next few years, we have made a number of

specific recommendations covering more or less the whole field of the activities of the department. Broadly speaking, it may be said that we feel that too much attention has been paid to the development of schools at the expense of other activities. We consider that a lakh or two spent on marketing will help the development of industries to a far greater extent than the expenditure of a corresponding amount on industrial and technical education. To enable the limited finance at the disposal of the department to be used to the best advantage we consider it necessary to effect savings under education and earmark them for the development of industries in other directions.

245. A statement showing the additional amounts required for the various new activities we have outlined and how they can be financed from savings will be found in Appendix XIV. A saving of 2·17 lakhs can be effected by closing down certain schools and reorganizing others, and by reducing the provision for grants-in-aid, but an additional expenditure of Rs.61,000 will have to be incurred in connexion with the maintenance of a glass expert at the Harcourt Butler Technological Institute, the starting of instructional classes, and in giving foreign scholarships. Thus the net saving on educational institutions will only be 1·35 lakhs. Out of this Rs.40,000 will be required for the development of the Emporium for Arts and Crafts, by setting up branches and increasing foreign trade ; Rs. 20,000 will be needed for a commercial museum of non-artware products of cottage industries, Rs.5,000 for a sole buying agency for handloom textiles, Rs.25,000 for the United Provinces Marketing Association and its agencies, and Rs.5,000 for an Industries Fair. Again a financing corporation will require at least Rs.10,000 a year and the amount for grants or subsidies at the disposal of the Board of Industries will have to be increased by Rs.30,000. The normal budget provision for "direction" will not need any substantial change. Some amounts will be required for non-recurring expenditure, but there will doubtless be savings under the recurring items mentioned above in the first few years from which such amounts can be met. Lastly, an additional amount of from 4 to 5 lakhs will be needed for commercial operations and advances, but as that is a recoverable item it does not affect the budget proper. These are only approximate figures

and considerable readjustments will have to be made, but it will be seen that the proposals put forward do not involve any additional net expenditure on, nor any reduction of the present grant for, the department as a whole.

J. P. SRIVASTAVA (*Chairman*).

W. L. STAMPE.

J. L. SATHE.

J. C. DONALDSON.

M. M. SINHA.

R. C. SRIVASTAVA.

S. P. SHAH.

J. A. H. DUKE.

P. M. KHAREGAT.

H. K. MATHUR

(*Secretary*).

January 5, 1934

APPENDIX I

Messrs. Shah and Duke's Note on the importance of the Leather-making industry and the need and scope for a Leather Expert.

(Vide paras. 27 and 53 of the Report)

1. We consider that the various leather industries, whether run on factory lines or otherwise, should be selected for intensive development and should take precedence over glass, and that the department should have a leather expert on the staff.

2. Authoritative opinion is unanimous about the strong claim of the leather industry to, and its need for, State-aid. The Naini Tal Conference (1907) held that leather chemistry should form one of the four departments of the institute proposed by it; the then Lieutenant-Governor of the United Provinces remarked that it was "scarcely necessary to urge the claims of sugar and leather in the United Provinces." The local Government's resolution of August, 1914, gave to "tanning and the treatment of leather in general" the third place—next after textile chemistry and the extraction and refining of oil—among the provincial industries categorized for State-aid. The Holland Commission recognized it as a "key" industry; as such it was perhaps the only one in those pre-protectionist days to receive protection by means of a 15 per cent. export duty. In 1920 the Richardson Committee gave leather priority over sugar in the organization of the Technological Institute; the Burn Committee took for granted the need for continuing the Leather section. The first Mackenzie Committee did not recommend its closing down and Government also gave to glass a place definitely below leather in the plan of work prescribed for the Institute. Even the second Mackenzie Committee, while recommending the closing down of leather as an independent section, proposed that leather research, particularly with reference to the

*Authorita-
tive.
opinion
(1907-
1932).*

needs of the indigenous tanning industry, should continue. The Hide Cess Enquiry Committee emphasized the need for research on the curing of raw-stock and on leather and tanning materials, and recognized Cawnpore as one of the three most suitable centres in India for such work.

It is true that the Leather section of the Institute failed to appeal to students desirous of training for technological careers; the reason for this should be obvious to those familiar with social conditions in India.

*Value to
U. P.*

3. Tanners and leather-workers number over a lakh in the United Provinces; tanneries alone number about 75,000. One of the largest tanneries utilizing its own leather in India and an important Ordnance Factory for leather and accessory goods are both located at Cawnpore; there are eight other leather-making "factories" in the province. The value of the leather and the allied industries to the United Provinces was estimated in 1929-30 at about six to seven crores* of rupees per annum.

*To leather
workers.*

4. The cottage type of the leather industry is unorganized and is almost exclusively in the hands of the poorer classes; the economic welfare of a large section of these classes depends on its proper development. State-aid to such an industry should, therefore, be given priority.

*Leather-
working
schools
cannot
develop
leather-
making.*

5. When the Tanning School at Fatchpur is replaced by one or more instructional classes for leather-making there will be no provision for their technical control and supervision. We can safely assert that neither of the present heads of the Leather-working schools at Cawnpore and Meerut is technically qualified or otherwise competent to supervise and develop the work of instructional classes for leather-making; they are both leather-workers but not leather-makers. Unless there is a leather expert the present position in which a disproportionate share of the department's resources is devoted to leather-working at the expense of leather-making will be perpetuated. It may also be mentioned

* Viz., One-seventh (i.e. proportionate to population) of about forty to fifty crores which was the value estimated by the Hide Cess Enquiry Committee for the whole of India.

that there is a post of leather inspector in the Co-operative Department ; this officer will have to look to the Industries Department for guidance and assistance.

6. We should add that as against three glass factories there are ten leather ones, and leather-making employs many times the number of men who get a livelihood from glass. If leather is mainly a cottage industry, so are oil and glass ; until recently even sugar was in an essentially similar position. If the development of leather on factory lines is considered doubtful, equally doubtful is the further development of oil and glass, and *now* perhaps also of sugar, as factory-scale industries. If a special section is needed at the Textile Institute for the handloom industry, the need for a special expert for the benefit of the minor and cottage types of the leather industry is no less urgent. To sum up, we cannot see the justification for any discrimination between textiles, oil, sugar and glass, on the one side, and leather on the other, so far as intensive development by a special expert is concerned. In practice, the department's work will tend to be limited to the minor and cottage types of even those industries which have been selected for intensive development ; if so, leather offers unique scope for such work.

Comparison with glass, oil, sugar, and textiles.

7. We should perhaps add that the honorary services of the Sugar Technologist to the Imperial Council of Agricultural Research as head of the Sugar section of the Institute are already available to the department. It is understood that the Imperial Council of Agricultural Research is going to give a substantial grant-in-aid for the maintenance of the oil section and may, before long, take it over. The only Expert then in the employ of the United Provinces Government will be the Glass Technologist ; thus, even from the financial point of view there is ample room for a leather officer.

Financially practicable.

8. More artisans and *ustads* tend to be unprogressive, hackneyed and traditional, and are unfit for genuine development work. The leather industry requires not merely a few *ustads* in charge of instructional classes but an expert who can take charge of research and experiments and other development work, and can guide the *ustads* and supervise their work. The department has had the services of a Leather Expert

Conclusion.

for over a decade. We propose that his services should continue to be available for the benefit of a cottage industry which in importance ranks next after textiles ; the fact that it is unorganized and is in the hands of the poorest and the most backward classes should be the strongest possible argument in favour of comprehensive State-aid for its intensive development.

S. P. SHAH.

J. A. H. DUKE.

APPENDIX II

Note on utilization of Hydro-electric Power by MR. W. L. STAMPE,
C.I.E., I.S.E.

(Para. 95 of report).

Cheap hydro-electric power is now available on the first stage of the Ganges grid system in 69 towns in the western districts of the United Provinces as well as in the towns of Kasganj, Delhi Shahdara, Sadabad, Dayalbagh and Tundla. Shikohabad, Firozabad, Jaswantnagar and Etawah are also being energised from the grid at Tundla by means of a licensee's high tension line. Of these towns 4 have populations of 50,000 and over, 5 of between 25,000 and 50,000, 26 of between 10,000 and 25,000 and 35 of less than 10,000.

A list of towns giving their populations and the electrical horse-power available therein is attached to this note as Schedule A (page 11A). It will be seen that about 10,000 horse-power has been made available in the 69 grid towns.

The area of supply extends over some 11,000 square miles from Hardwar in the north to Etawah in the south and in breadth from Baghpat on the Jumna to Chandausi in Moradabad District.

In addition to these urban centres the 106 sub-stations of which are energised by 960 miles of high tension line constituting the main transmission system power has also been made available at 110 rural sub-stations supplied by 120 miles of local branch lines over the electrified area. The total load connected to this secondary or rural network is 2,500 H. P. Forty sub-stations have also been built for 75 State tubewells in Moradabad, Bijnor Meerut and Bulandshahr Districts at which points power is available for private consumers.

Power to the extent of 2,200 H. P. is also supplied to the four river pumping stations of the Irrigation Department which enable 400 cusecs to be pumped from the Kali Nadi, Ramganga and Gangan rivers for irrigation in the various canal systems fed therefrom for extensions in hitherto dry areas.

To feed these various installations 8,900 kilowatts or 11,900 H. P. are generated at the four hydro power stations at the canal falls of Bahadurabad, Bhola, Palra and Sumera. Six more falls are available for generating additional power as load develops on the grid the main lines of which have been designed for duplication as and when required. It is thus expected that a total output of 49,000 H. P. will be available under the ultimate scheme. The system has been so arranged that the capital cost will only be increased in proportion to the earning power of

the grid so that at no time will the system be over-capitalized. By this means it has proved possible to meet all the annual charges within the fourth year of operation of the scheme.

As regards provision of power at other places it may be explained that the agreements between the Irrigation Department and the various distributing licensees provide for the construction of rural extensions on certain conditions. Briefly, extensions are allowed to consumers who guarantee consumption to the extent of 12 per cent. on the additional capital required for their lines. The distance to which a new connexion can be given thus depends on the load to be connected and the number of units likely to be consumed.

Cost of supply.

2. Hitherto electricity has been sold on a flat rate tariff as follows :

The bulk rate charged by the Irrigation Department to the licensees is Re.0-2-6 per unit for lights and fans, 1 anna for minor urban industries and Re.0-0-10 per unit for agricultural industries in the rural areas. The maximum retail rates chargeable by the licensees are Re.0-5-6, Re.0-1-6 and 1 anna per unit respectively. (In the towns of Hardwar, Roorkee, Saharanpur, Meerut, Muzaffarnagar, Khurja and Aligarh the maximum domestic retail rate is 6 annas per unit.) The Irrigation Department now offer as an alternative a sliding scale industrial tariff based on the relation of units consumed to horse-power connected which should prove of great benefit to industrial concerns. Details of this tariff are given in Schedule B. Its introduction has enabled a number of the larger industrial consumers to be connected, as for instance the Straw Board Factory at Saharanpur to which 170 horse-power is retailed at a rate of 5·1 pies per unit. Similarly in the case of oil extracting mills at Hapur, and Hathras power is being sold at approximately 7·2 pies per unit.

A further recent innovation is the two-part industrial tariff [(a) A monthly charge of Rs.6 per H. P. of maximum demand plus (b) a flat rate of 6 pies per unit]. This tariff enables a seasonal consumer to avail himself of reduced rates based on the consumption of a few months instead of that of the whole year. Fuller particulars about this tariff will be found in Schedule C.

Comparative statistics of the sale tariffs of various other supply companies in the United Provinces are given in Schedule E. As typical instances of cheap seasonal power on the grid scheme, the following cases may be quoted :

A rice hulling mill of 10 H. P. working 16 hours a day for 4 months can obtain low tension current at a retail price of 9·3 pies per unit. A sugar centrifugal and crusher plant of 25 H. P. working the same number of hours in the season in urban areas will pay 9·8 pies per unit. A cotton ginning factory of 60 H. P. (20 gins) working 20 hours daily for three months will pay 9·1 pies per unit and a flour mill of 10 H. P. working 300 days in

the year for an average of 10 hours will pay 12·2 pies as against Re.0-1-6 on the flat rate scale in all cases.

A glance at the comparative prices in Schedule C will show that these rates are from 23 per cent. to 61 per cent. lower than those in force in non-grid towns for instance Lucknow, Allahabad, Cawnpore, Delhi and Bareilly for power supplied under similar conditions. This analysis shows how cheaply hydro-electric power can be utilized for industrial development.

It is in regard, however, to the scattered agricultural consumers of the rural area that the hydel scheme confers its greatest benefits. The flat agricultural retail rate of 1 auna per unit or 9 pies per horse-power is believed to be as low as any rate obtaining in the world for isolated rural consumers with small installations. In Europe the rate for rural supply usually increases with the distance from the power station whereas on the Ganges grid this low rate is entirely independent of the distance. All that is stipulated is that a consumer or a batch of consumers in a particular area, shall undertake the consumption of a sufficient number of units in the year to ensure the department a reasonable return (usually taken as 12 per cent.) on the capital involved in his particular extension. It has been ascertained by three years experience of operation that a connected load of approximately 15 H. P. justifies an extension a mile in length from the main transmission system.

3. It has been frequently asserted that it will not pay the cottage industrialist to use hydro-electric energy either in the rural or the urban areas. As regards rural consumers the departmental statistics show that in March, 1931, there were 38 consumers with a connected load of 644 H. P. on 67 miles of rural branch lines. In March, 1932, the figures were 83 consumers with a connected load of 1,367 H. P. on 87 miles of lines, whilst by March, 1934, 140 consumers with a connected load of 2,500 H. P. will have been connected on 120 miles of lines. 3,03,000 units were consumed on these rural connexions in 1932-33 and at the present rate of increase 8,00,000 units are expected to be utilized in the current year. Of these electric installations about 10 per cent. have been converted from oil engine drive the rest being new plants. From the rapidly increasing consumption it would appear that the rural public find it profitable to use the hydro-electric power.

*Brief
review of
the
economics
of
electrified
industry.*

Hitherto irrigation from village open wells has been almost entirely carried out by bullock power but the advent of the electric driven tube well has led to a large increase of irrigation in the non-canal tracts and the consequent release of the bullock for additional ploughing and transport purposes. In a brief review of this nature it is not possible to examine very closely the relevant statistics, but the following figures show briefly the advantage of power pumping. In those districts where large open wells are geologically possible, with spring level at say

20 feet below ground an ordinary two-bullock *charsa* can lift approximately 2,000 gallons per hour or say 20,000 gallons per working day. A 5 H. P. motor pump on the other hand taking $3\frac{1}{2}$ units per hour can lift over 20,000 gallons to the surface in an hour at an inclusive cost of about 7 annas per hour.

The commercial rate for pumping from the State tube-wells in the Moradabad District is Rs.2 per acre watering for wheat and Rs.3 for sugar against an actual labour cost of over Rs.3 per acre watering for bullock power for wheat and Rs.4-8 for sugarcane. This latter rate includes no provision for *charsas*, ropes, hire of well, etc.

The increasing demand for an extension of the State tube-well system in Moradabad, Bijnor, and Meerut is in itself a proof of the economy of electric pumping compared with either bullock or oil engine drive. In addition to some 29 State tube-wells in these districts, 65 private tube-wells have been electrified in the grid area within the last two years and the number is steadily increasing. Apart from irrigation pumping, there is an increase in demand for power for crushing sugarcane and centrifuging rab. One hundred and four small electric driven sugarcane factories have so far been installed in the grid area.

It is interesting to compare the yield of a small bullock driven kolu with that of hydel driven crusher. The ordinary bullock kolu yields $1\frac{1}{2}$ maunds per hour as against 25 maunds for a 12 H. P. motor driven mill. The average consumption of the latter mill is 6 units per hour costing 6 annas equivalent to a rate of 4 pies per maund.

It has been said that as the cultivator owns the bullock its labour costs him nothing. In practice, however, the bullock can obviously be put to a more economic use such as ploughing extra land and hauling produce to the nearest market as is in fact the case in the canal irrigated areas.

As regards urban areas also, statistics show a steady increase of electrical demand. In March, 1931, the total connected urban motor load for 127 small industrial motors was 1,330 H. P. which increased to 3,500 H. P. for 397 motors in 1932 and to 5,400 H. P. for 692 motors in 1933.

The extent of the use of hydel power in the rural areas has been given in sufficient detail in the previous paragraph and the following remarks deal with the utilization of hydel power for the principle urban industries.

Generally speaking the fact that the total horse-power of urban industrial motors installed has increased four fold in two years up to March, 1933, and continues to increase at the same rate would appear to be strong evidence of the public appreciation of Hydel power.

4. The following details as regards particular industries are interesting :

*Details
regarding
particular
industries.*

Flour milling—This industry constitutes by far the greater proportion of the grid minor industrial loads. In March, 1933, there were 270 flour mill motors totalling 2,670 H. P. operating in the grid area. These motors ground approximately 2,000,000 maunds of flour in 1932-33. The average rate for grinding flour has it is ascertained been reduced from 6 annas per maund in pre-grid days to 3 annas at present and continues to fall owing to competition with other means of power. It is thus estimated that an annual saving of Rs.3,75,000 has been incurred by the population of the grid towns as a whole.

Brass polishing—In Moradabad two years ago there was no electricity driven polishing plant. At the present time there are 22 such installations totalling 99 H. P. One or two new plants are being connected monthly and there is every prospect of a large advance in this industry. Approximately 10,000 units were consumed in July alone by these. The cost of polishing by electric drive has been reduced by 75 per cent. below that of manual labour.

In Aligarh out of 62 motors installed in the city 20 with a total of 135 horse-power are used in connexion with metal polishing and consumed 10,200 units in July last.

There was considerable local opposition in both towns at the outset to the substitution of electric drive for manual power but this is dying out now.

Cotton ginning—There are 12 cotton ginning plants in operation on the grid in both urban and rural areas with a total installed horse power of 384. The number of small cottage gins in the Bulandshahr and Aligarh Districts is increasing rapidly and it is anticipated that a heavy load will develop in this line in the near future.

Sugar processing—As regards the sugarcane industry hydro-electric power has hitherto been confined to driving small farm crushing plants and centrifugals, the juice being boiled in open pans. In March, 1933, there were 104 sugar plants (crushers and centrifugals) in the grid area with a total installed motor capacity of 600 H. P. Since then the cheap power rates now offered under the two part tariff have led to an increase in the number of applications for load for these plants.

In the case of large factories it is generally cheaper to drive the machinery by steam using the waste steam for the vacuum pan and other processes. Hydro power to the extent of 250 H.P. is, however, being taken by 7 out of 9 steam driven factories in the grid area for lighting, pumping and driving the centrifugals during the non-crushing season when bagasse is not available for firing the boilers.

In regard to the medium size factories an important experiment is now being conducted by the Irrigation Department in consultation with Mr. R. C. Srivastava, the Sugar Technologist. The object in view is to determine to what extent the small vacuum pan system supplied with steam from a low pressure boiler can be economically operated in conjunction with a hydel driven crushing and centrifugal plant.

In the Upper Ganges and Jumna Canals doabs it is computed that out of 300,000 acres under sugarcane no less than 155,000 acres lie outside the economic range of transport to the large factories which must be sited on the railways. Under present conditions the cane from these so-called "remote" areas is disposed of in three ways :

(a) by turning it into gur either for local consumption or for selling to factories for conversion to sugar in the off-season,

(b) by treating it by small crushers (either hydel or bullock driven) boiling in open pans and centrifuging either by hydel current or manual labour for "desi" sugar. The comparatively poor quality and therefore low price of "desi" sugar compared with that of factory sugar tends, however, to render this process uneconomical.

(c) by carting it long distances and thus selling it at a small profit to the distant factories.

The results of the present experiment will show whether or not an efficient compromise can be effected between the large all steam system and the small hydel factory by means of small vacuum pans. If the latter process can in fact yield a 7 per cent. extraction of sugar from cane, as the estimates indicate, the lower capital and overhead costs of such factories will enable them to compete economically with their larger rivals whose area of operation must obviously be more restricted. The experiment is likely to have far-reaching effects in the economics of the sugar industry in the remote areas and its results are keenly awaited.

Bone meal manure—The Irrigation Department have under contemplation a scheme for developing the cheap manufacture of bone meal manure and other artificial fertilizers on the following lines :

A glance at the annual load graph of the grid for the past three years shows that due to the seasonal cessation of the pumping load there is a marked trough of low load prevailing during the months of July to October inclusive. The average peak load for the remainder of the year exceeds that obtaining during these four months by at least 1,200 horse-power. This is a natural feature in a scheme one of the main objects of which is to energise canal and tube-well pumping installations. Realizing that cheap artificial manure is an essential commodity in the case of land irrigated at comparatively higher rates by pumped

water, the department is anxious to encourage the cheap production of artificial manure by offering current at low price during these low load months. It is likely that power for a purely seasonal process such as the manufacture of bone meal or oil cake fertilizers can be made available at a retail rate as low as 9 pies per unit, or rather more than half an anna, per horse-power hour during the months of July to October. The feasibility of establishing factories on co-operative lines near the principal tube-well centres of the grid area is being carefully studied and if it can be shown that such fertilizers can be put on the market as a result of cheap power at prices 40 to 60 per cent. lower than those now current, there is likely to be a wide use of such manures resulting in an increase of crop yield in the tube-well area. This would largely counteract the incidence of cost of power pumping on the price of the irrigated crops. Such a combination of cheap power for tube-well pumping with facilities for the necessary fertilizers will greatly stimulate production in the grid area.

5. A brief mention was made on page 1A of the possibilities of producing additional power to the extent of 38,000 (49,500—11,500=38,000 H. P.) horse-power by electrifying the six remaining falls on the Upper Ganges Canal. The prospects of a large reduction in power costs as a result of such an extension and the stimulating effects of the resulting low prices on local industries is of sufficient importance to justify the preliminary examination of this aspect of the scheme.

*Prospects
of future
expansion
of the grid.*

It has been shown in the revised Chapter VI of the Ganges Canal grid report that a total output of 49,500 horse-power can be made available in the grid area from the commercial share of which not less than 69 million units can be supplied annually for commercial purposes at the local sub-stations. This forecast was made in 1932 and the subsequent realization of sales and revenues corroborates the accuracy of the earlier estimates. In 1932-33 the actual grid revenue was 10·4 lakhs against 9 lakhs anticipated and in 1933-34 will be 13·5 lakhs against an estimate of 12·5. It has been shown that allowing for interest, depreciation and operating charges on the enhanced capital, the average cost of power at the sub-stations will ultimately be as low as six pies per unit (low tension). The present average price in the first stage of the scheme is 0·8 annas or about 10 pies. The ultimate allocation of the enhanced power generated to the various forms of utilization must remain a matter of speculation, but if the present proportionate allotment of loans is taken as a guide it is clear that 30,000 horse-power can be made available at urban sub-stations for minor urban industries and special industries and 6,900 horse-power at rural sub-stations for agricultural processes including private well pumping. Assuming the continuance of the present load factors for these allotments of power or, in other words, assuming the same proportion of units

sold per annum to loads allotted in each case 55 millions units could be made available for minor and special urban industries and 14 million units for agriculture. It is clear therefore, that if the principle is accepted that the benefits of reduced production costs are to be given to the consumers instead of being merged in the provincial revenues, a very valuable concession can be conferred on the provincial industries. Industrial power which is now being sold on a flat rate tariff of 1 anna 6 pies can in future be reduced to 1 anna 2 pies even allowing the present 33 per cent. proportion of profit to the licensees. Similarly the agricultural flat rate which as pointed out is already low, could be reduced by 25 per cent. or say to 9 pies per unit. In the case of State tube-wells for commercial irrigation the price of hydel energy can be reduced from 7 pies as at present to 5 pies resulting in a normal year on the average well in a reduction of the cost of irrigation by as much as 10 per cent. thereby offering a valuable contribution to the welfare of the province.

*Alleged
Difficult-
ties.*

6. In the rural tract there has hitherto been no disinclination to use hydel energy for its primary purposes, viz. : pumping water and driving sugar machinery. On the contrary the Irrigation Department has been embarrassed by the number of demands for new rural branch lines and in two of the worst agricultural years on record has had to double its demand under capital in this connexion. The revenue authorities are being pressed for takavi advances to buy rural machinery at all parts of the grid. It has been pointed out on page 3A that by the end of the current year there will be 120 miles of rural branch lines in operation. It has been found that each line itself acts as an efficient publicity agent in its own locality. This is well illustrated in one suburb of Meerut where a line originally built for three consumers in 1931 now supplies 23. Apart from this there exist a development division with headquarters at Meerut possessing a staff of irrigation and electrical officers who explain the advantages of electrical drive to the zamindars and draw up minor irrigation and electrical projects for rural installations. It is largely due to the enthusiasm of these development officers that the rural portion of the scheme has advanced so far.

Turning to the urban centres, the graphs of load development in the small towns show that for the essential industries such as flour milling and sugar centrifuging the advantages of electric drive are already sufficiently well known. The fact that in March, 1931, the first year of operation of the grid, there were only 127 urban motors totalling 1,330 H. P. whilst two years later there were 692 motors totalling 5,400 H. P. is sufficient proof of this.

In the case of cotton ginning and oil pressing, however, as well as such minor processes as metal polishing, electro-plating, etc. the economic utilization of hydel power requires to be explained to the public by means of demonstration centres

operated by the Irrigation Department in conjunction with the licensees. A show room has already been opened in Khurja as an experiment where a cotton gin, and other equipment can be seen in operation. It appears advisable to open similar show rooms in other towns and this will be done as the funds provided for publicity in the Irrigation budget allow. The department have had in operation for two years a machinery demonstration set which has been exhibited with advantage in all the large towns of the grid. It is proposed to provide a second set also, if funds permit and both sets would be equipped with additional plant to show the oil ghanni extraction process and the use of electrical drive for metal polishing wood lathes, etc.

There is no shortage of facilities for procuring the ordinary types of machines such as flour mills, cotton gins, water pumps, sugar crushers and centrifugals. All the larger electrical firms in India have agencies in the grid area and their representatives are constantly touring the districts. The licensees are being induced to open agencies for the demonstration of the less known types of machines such as oil pressing, rice hulling and metal working plants.

There has hitherto been no difficulty in regard to the establishment of repairs services in the grid area. As far as the motors themselves are concerned it must be remembered that a motor consists of only one revolving part with two bearings as contrasted with the numerous parts and bearings of an oil or steam engine. Repair agencies have already become spontaneously established in all the larger towns of the grid area such as Saharanpur, Meerut, Aligarh and Moradabad. As in the case of all new enterprises electrification is creating its own sources of supply of and repairs to machinery and it would not appear that any special artificial organization is necessary for this purpose.

As regards the difficulties alleged to be inherent in the present system of measurement of electric consumption it has not been found that consumers are deterred by any difficulties on this account. Figures collected from the various licensees show that the percentage of complaints against bills computed by meters is negligible—a fact which goes far to prove that the meter system of measurement is not unpopular. In March, 1933, there were 6,870 consumers' meters operating in the grid area.

It has been alleged that the difficulties of supplying a small amount of energy to a larger number of urban consumers specially on the industrial side has militated against the success of the scheme. From an examination of the figures there appears to be no ground for this fear. The fact that out of 635 private motors consumers in the grid area, 520 or 82 per cent. have installations of not more than 10 horse power is in itself sufficient proof of this. Both the high tension lines of the Irrigation Department and the low tension distribution lines of the licensees

within the towns are specifically laid out more with view to the development of a large number of minor loads than to the supply of large blocks of power. An examination of the sizes of the low tension conductors in small towns is sufficient evidence of this.

The secret of the successful development of this scheme appears to be the cheapness of the power offered especially in the case of isolated and small consumers, compared with the prices current for similar power in other towns. It is sufficiently clear that power at the nine pias per horse power hour flat rate prevailing in the rural area is cheaper than any other form of power and is bound to result in the development of many agricultural processes hitherto beyond the reach of the rural industrialist. Any further cheapening of such power, as would appear to be feasible with an expansion of the grid scheme will obviously still further stimulate the development, of irrigation, the basis of all agricultural development as well as of industry.

W. L. STAMPE.

Schedule A to Mr. Stampe's Note (Appendix II)

*List of towns at which electricity is available at the
Ganges Canal Hydro-Electric Scheme.*

Towns	Popula- tion	Horse power avail- able	Towns	Popula- tion	Horse power avail- able
<i>District Saharanpur</i>			<i>District Bijnor—(concl'd)</i>		
1. Hardwar Union ..	31,000	466	39. Sherkot ..	14,000	67
2. Roorkee ..	12,000	480	40. Kiratpur ..	15,000	67
3. Saharanpur D. C. } 62,000	}	333	41. Nohaur ..	10,000	67
4. Ditto A. C. ..			42. Chandpur ..	11,000	67
5. Deoband ..	18,000	67	<i>District Moradabad</i>		
6. Rampur ..	6,000	33	43. Kanth ..	7,000	67
7. Manglaur ..	9,000	67	44. Moradabad ..	86,000	480
8. Gangoh ..	12,000	67	45. Bilari ..	5,000	67
<i>District Muzaffarnagar</i>			46. Sambhal ..	42,000	212
9. Muzaffarnagar ..	24,000	240	47. Amroha ..	41,000	133
10. Purqazi ..	5,000	27	48. Hasanpur ..	10,000	67
11. Charthawal ..	6,000	33	49. Bachhrawan ..	7,000	33
12. Thana Bhawan ..	7,000	33	50. Chandausi ..	25,000	453
13. Kairana ..	18,000	67	<i>District Bulandshahr</i>		
14. Shamli ..	8,000	133	51. Sayana ..	7,000	33
15. Khatauli ..	8,000	67	52. Bulandshahr ..	20,000	133
16. Jansath ..	5,000	67	53. Sikandrabad ..	18,000	67
17. Miranpur ..	6,000	67	54. Danksaur ..	5,000	67
18. Kandhla ..	10,000	67	55. Jehangirabad ..	10,000	67
<i>District Meerut</i>			56. Shikarpur ..	10,000	67
19. Meerut ..	78,000	906	57. Anupshahr ..	7,000	33
20. Meerut Cantonment ..			58. Dibai ..	10,000	67
21. Faridnagar ..	6,000	33	59. Gulaothi ..	6,000	67
22. Pilkhuwa ..	7,000	11	60. Khurja ..	24,000	400
23. Ghaziabad ..	15,000	133	<i>District Aligarh</i>		
24. Moradnagar ..	5,000	27	61. Aligarh ..	67,000	750
25. Mawana ..	10,000	33	62. Atrauli ..	13,000	67
26. Parichatgarh ..	5,000	11	63. Harduaganj ..	5,000	67
27. Baraut ..	9,000	67	64. Hathras ..	40,000	400
28. Chhaprauli ..	6,000	11	<i>Total</i>		
29. Khakra ..	9,000	33	.. .. 10,045		
30. Sardhana ..	10,000	67	<i>Other towns</i>		
31. Garhmuktesar ..	6,000	33	65. Sadabad ..	3,862	67
32. Hapur ..	21,000	320	66. Shahdara ..	7,000	133
33. Baghat ..	5,000	67	67. Dnyalbagh (Agra)	3,000	267
<i>District Bijnor</i>			68. Tundla ..	2,716	} *
34. Najibabad ..	19,000	133	69. Kasganj ..	21,000	
35. Nagina ..	19,000	67			
36. Dhampur ..	8,000	133			
37. Soohara ..	9,000	67			
38. Sahaspur ..	6,000	27			
39. Bijnor ..	18,000	133			
40. Mandawer ..	6,000	67			

* Supply not yet commenced.

Schedule B to Mr. Stampe's note (Appendix II)*Reduced rates for supply of electricity for industrial purposes on the Ganges Canal, Hydro-Electric Scheme*

Special reduced rates for the supply of electrical energy to be used for industrial purposes have been introduced in the districts of Saharanpur, Muzaffarnagar, Meerut, Bijnor, Moradabad, Aligarh and Bulandshahr with effect from 1st January, 1932. The retail rates payable by the consumers will be as below :

Units consumed per B. H. P. per year	For installations of 50 H. P. or over	Other installations
	Rate in pies per unit	Rate in pies per unit
A—If not in excess of 1,320	18	18
B—If in excess of 1,320, then—		
(a) First 1,320 units of the total consumption ..	17	18
(b) First 1,200 units of the excess over 1,320 ..	6½	9
(c) Next 900 units of the excess	4½	7
(d) Remainder of the excess	¾	2½

On this sliding scale the through rate per unit will be much reduced with the increase of annual consumption per H. P. of motor. The consumer will receive on a 10 H. P. motor say, bills for the first 1,320 units per B. H. P. at 18 pies per unit. If he uses a further 600 units per B. H. P. they will cost him 9 pies each.

Thus—

A—For installations of 50 H. P. or over consuming at least 1,320 units per B. H. P. per year the following will be specimens of through rates :

Annual consumption per B. H. P. units						Through rate in pies per unit
1,320	..	..	..	..	..	17
1,600	..	..	..	..	..	15·2
2,000	..	..	..	..	..	13·4
2,500	..	..	..	..	..	11·8
3,000	..	..	..	..	..	10·8
4,000	..	..	..	..	..	8·7
5,000	..	..	..	..	..	7·1
6,000	..	..	..	..	..	6·0

B—For other installations.

Annual consumption per B. P. H. units						Through rate in pies per unit
1,320 or less	..	..	..	..	..	18
1,600	..	..	..	..	..	16·4
2,000	..	..	..	..	..	14·9
2,500	..	..	..	..	..	13·8
3,000	..	..	..	..	..	12·6
4,000	..	..	..	..	..	10·6
5,000	..	..	..	..	..	9·0
6,000	..	..	..	..	..	7·9

NOTE—(a) For installations with an annual consumption of less than 2,000 units per B. H. P., higher rates for the period between sunset and midnight may be re-introduced.

(b) For installations of less than 50 H. P. which are so situated that the supplier is required to incur extra expenditure in giving supply by reason of having to construct additional transmission lines or sub-stations or having to increase the capacity of existing lines, a fixed rental charge per H. P. per year will be made by the supplier in addition to the above rates. The amount of such rental charge shall be quoted in accordance with the circumstances of each case, but will usually be equal to $7\frac{1}{2}$ per cent. of the extra cost.

(c) The sliding scale is only applicable for bills paid within the time limit fixed by the licensees. If bills are not paid within the specified time-limit, the full rate of Re.0-1-6 per unit will apply.

Schedule C to Mr. Stampe's note (Appendix II)

Note on the two-part tariff for electrical energy required for industrial purposes on the Ganges Canal Hydro-Electric Scheme

The following two-part tariff has been introduced as an alternative to the sliding scale of charges and conditions with effect from 1st October, 1933, in the districts of Bijnor, Moradabad, Saharanpur, Muzaffarnagar, Meerut, Bulandshahr and Aligarh except in the towns of Saharanpur, Roorkee, Hardwar, Muzaffarnagar, Meerut and Aligarh for which special notices are being issued.

Each consumer will be required to enter into an agreement with the Company and guarantee for a minimum period of two years to take a supply in accordance with the undernoted rates and conditions.

The consumer will not have the option of changing from one tariff to another during the period of agreement.

Tariff—At the rate of Rs.6 per month per B. H. P. installed plus pies nine per unit consumed.

A discount of pies three per unit will be allowed on the unit rate only for cash payment within the period specified on the bill.

The application of this tariff will be subject to the following conditions :

1. (a) A consumer whose installation is supplied from the Company's distribution mains in a municipal or town area and who elects to be charged according to this tariff must keep his installation connected to the Company's mains for at least three consecutive months in any complete period of twelve months. Applications for disconnexions and connexions must be delivered to the Company in writing at least fourteen days before the disconnexion or reconnexion is required.

(b) A consumer electing to be charged according to this tariff whose installation is supplied from a rural branch line constructed by the Irrigation Department must keep machinery of a minimum aggregate B. H. P. connected throughout the year. The minimum B. H. P. will be fixed by the Irrigation Department in accordance with the circumstances of each case.

2. **Minimum charge**—Rupees 6 per month per B. H. P. installed will be charged as a minimum for so long as the supply is connected to the Company's mains, irrespective of whether any current is consumed or not.

No guarantee of minimum monthly or annual consumption of units will be required from consumers operating under this two-part Tariff.

3. For installations of less than 50 B. H. P. which are so situated that the Irrigation Department is required to incur extra

expenditure in giving supply by reason of having to construct additional transmission lines or substations or having to increase the capacity of existing lines, a fixed rental charge per year shall be made by the Irrigation Department in addition to the above rates. The amount of such rental charges shall be quoted in accordance with the circumstances of each case, but will, usually, be equal to $7\frac{1}{2}$ per cent. of the extra cost.

4. Installations under these conditions will be otherwise subject to the published conditions of supply issued from time to time by the Company and the Irrigation Department.

5. The usual payments in respect of service connexion and deposit must be made and the installation will be inspected and tested before connexion.

Explanatory note on two-part tariff

This tariff specially suitable for seasonal industries working for a large number of hours per day during a few months in the year. On the other hand the sliding scale of charges will be more favourable for industries working for a large number of hours per day throughout the year.

The following are some specimens of through rates according to this tariff as compared with the sliding scale of rates :

Process	Length of season.	Brake horse-power of motor	Assumed average number of working hours per day during the season	Total number of units consumed per B. H. P. per month	Through rate in pies per unit according to the two-part tariff	Through rate in pies per unit according to the sliding scale of rates
	Months	H. P.	Hours	Units	Pies	Pies
Rice hulling	4	10	16	300	9·8	18
Sugar-centrifugal and cane crusher.	4	25	16	300	9·8	18
Cotton ginning factory ..	3	60	20	375	9·1	18
Ice factory	6	40	20	375	9·1	14·3
Flour mill	12	10	12	225	11·1	13·3
Oil mill	12	60	20	375	9·1	7·0

N.B.—The above figures are based on the assumption that the motors will be working on an average for 25 days in a month.

W. L. STAMPE,

Chief Engineer, U. P., P. W. D., I. B.,

Western Canals.

Dated the 18th October, 1933.

Schedule D to Mr. Stampe's note (Appendix II)

The expression "agricultural purposes" includes the following operations if carried on by bona fide agriculturists, which expression includes zamindars, agricultural tenants, village communities, Government Farms and rural co-operative societies and such other persons as the Chief Engineer of the Irrigation Branch of the Public Works Department of the United Provinces (hereinafter called the "Chief Engineer") may consider to be bona fide agriculturists :

- (1) Pumping water for Irrigation,
- (2) Sugarcane crushing,
- (3) Sugar refining,
- (4) Chaff cutting,
- (5) Crushing of oats barley, gram, etc., for fodder, and
- (6) Manufacture of bone meal manure.

Provided—

that in the case of "pumping water for irrigation" a substantial proportion of the land irrigated by pumping is cultivated by the agriculturists themselves, and in the case of any other operation above referred to except "manufacture of bone meal manure" a substantial proportion of the crop or produce treated by the said operation has been grown by the agriculturists themselves ;

that except in the case of village communities and rural co-operative societies the operations are carried out on an agricultural farm belonging to the agriculturists or in the close vicinity of the area on which the crop or produce treated by the operation has been grown but not within a Town Area or Municipal Area, and

that in the case of "Manufacture of bone meal manure" a substantial proportion of the manure manufactured is used by the agriculturists themselves on the lands cultivated by them.

The opinion of the Chief Engineer as to whether any operation is "substantial" or whether the operation is being carried out on an agricultural farm or in the close vicinity of the area on which the crop or produce has been grown within the meaning of these provisions shall be final.

Any dispute as to whether any other purpose except the operations referred to in this explanation is or is not an "agricultural purpose" within the meaning of this explanation shall be decided by the Chief Engineer after taking the opinion, if so requested, of the Director of Agriculture, United Provinces.

Schedule E to Mr. Stampe's note (Appendix II)
Through rates for electrical energy for various industries

H.P.	Process for which used	Number of months per year during which the motor works	Average number of working hours per day	Approximate number of units consumed per month	Through rates in pies per unit									
					The United Provinces Electric Supply Co., Ltd., Lucknow, Allahabad	Cawnpore Electric Supply Corporation, Ltd.	Delhi Electric Supply and Traction Co., Ltd., Delhi	Uhl river Hydro-Electric Scheme, Punjab	Lahore Electric Supply Co., Ltd., Lahore	Hydro-Electric Scheme, Mysore State	Pykara Hydro-Electric Scheme, Madras	Tata Hydro-Electric Power Supply Co., Ltd., Bombay	The Bombay Electric Supply and Tramways Co., Ltd., Bombay	The Ganges Canal Hydro-Electric Scheme, United Provinces.
5	Brass polishing	12	8	750	17·3	25·3	16·2	14·76	27·0	12·0	14·76	..	24·0	13·7
10	Flour Mill	12	10	1,875	15·8	18·00	16·2	13·31	16·2	12·0	12·9	..	14·27	12·1
10	Rice Hulling	4	16	3,000	13·4	14·90	16·2	11·13	14·64	12·0	13·92	..	11·36	9·8
25	Sugar centrifugal and crusher.	4	16	7,500	13·4	14·90	16·2	11·16	14·64	13·5	10·99	..	11·36	9·8
60	Cotton Ginning Factory.	3	20	22,500	12·7	13·87	Special rate	8·19	Special rate	8·1	9·6*	..	10·69	9·1
60	Oil mills	12	20	22,500	12·7	13·87	Special rates	8·19	Special rate	8·1	8·86	..	10·69	7·8
70	Ice Factory	6	24	31,500	12·16	13·18	Special rate	7·74	13·76	8·1	9·6†	..	9·6	8·56
125	Rolling Mill	12	8·5	19,922	16·8	19·44	Special rate	10·98	16·9	8·4	10·3	..	13·47	13·2
200	Strawboard Factory	12	24	90,000	12·16	13·18	Special rate	6·91	Special rate	7·2	6·44	7·75	8·22	6·62

* The actual rate calculated is 8·46 pies per unit but the minimum chargeable is 9·6 pies.

† The actual rate calculated is 8·1 pies per unit but the minimum chargeable is 9·6 pies per unit.
 N.B.—It is assumed that motors will only be working on an average for 25 days in a month.

APPENDIX III

Outlines of a scheme for a foreign agency of the Emporium (vide paragraph 80 of the Report)

In order to bring to the notice of foreign buyers, Indian artware which does not at present reach them through the ordinary trade channels, it is necessary to have some sort of an agency on behalf of the Arts and Crafts Emporium which may take up goods which are likely to command a ready sale in the foreign market, and are of such a kind as are not dealt with by the ordinary trade agencies. The terms for such a special agency may be along the following lines :

(1) The agent will be supplied with the samples of all goods free of charge. These samples will be held in trust by the agent to be accounted for when called upon by the Director of Industries.

(2) The agent will also be allowed a small stock of goods for sale but he must see that the value of the same does not exceed £1,000 at any time. The agent will send his indents for goods to the Director of Industries from time to time, within the above limit, but on special occasions such as fairs, etc., when he may find that this is insufficient, he will write to the Director of Industries to enhance the limit temporarily to meet the demand. Whenever he may find in his stock any articles damaged or deteriorated and consequently not likely to fetch the usual price, he will send a list of such articles proposing reduced rates at which they may be sold, or return them to India. This will enable the agent to maintain his stock of only marketable goods up to the prescribed limit.

(3) The agent will sell goods wholesale at the rates given in the price-lists prepared by the Director of Industries from time to time. If goods are sold retail the prices charged should be approximately 25 per cent. more than the wholesale rates.

(4) The agent will deposit from time to time the sale-proceeds with the High Commissioner or such other officer whom the High Commissioner may authorize to receive the money; purchasers making payment by cheques being asked to draw the same in favour of that officer.

(5) The agent's commission of 10 per cent. and other authorized expenditure incurred on behalf of the department will be paid to him by the High Commissioner month by month on receipt of bills supported by vouchers.

(6) The wholesale sterling rates are based on the value of the goods in rupees and represent the cost of articles landed at the port. The rupee value will be converted

into sterling at rates to be fixed by the Director of Industries and thus the sterling prices are likely to be revised from time to time when necessary.

(7) The agent will maintain his stock at his own risk which is to be covered by insurance but the samples will be maintained at the risk of the department.

(8) When wholesale orders are received through the agent, the goods will be sent to him. He will then see that due payment is made for the goods.

(9) The agent will have to bear the following expenditure out of commission allowed to him :

- (1) travelling expenses to secure orders ;
- (2) postage and stationery ;
- (3) maintenance of telephone ;
- (4) advertisement, and
- (5) insurance of stock.

(10) The department will bear the following expenditure :

- (1) cost of bringing the goods to the agent's house or to any depot he maintains ;
- (2) cost of packing and receipt stamps ;
- (3) cost of cables.

APPENDIX IV

[Vide paragraph 105 of the report]

Typical scheme for an oil mill with power-driven ghannies worked by hydro-electric power, having a crushing capacity of 80 maunds (mustard) seed.

The following is intended to serve merely as a specimen to indicate the lines on which typical schemes might be drawn up and supplied to the public. The calculations here are more or less hypothetical. Figures about a number of items, especially "Profits," must necessarily be provisional in any such scheme, as they will naturally vary with local and market conditions, efficiency of out put, etc.

Capital expenditure—

	Rs.
1. 21 power-driven ghannies made at Cawnpore, at Rs.120 each	2,880
2. Shafting, belting, plummors, blocks, pullics, etc.	880
3. Seed cleaning machine	500
4. Filter press, and storage tanks for oil	2,000
5. Weighing scales, wood-turning lathe and other implements ..	1,300
6. A. C. Motor 25 H. P. and 705 revolution per minute with starter	1,160
7. Cost of site, erection of foundations, etc.	1,200
8. Construction of two galvanized iron sheds 35' x 40' for (i) ghannies and (ii) for stores (seed, oil and cake)	4,000
9. Miscellaneous unforeseen items	1,000
Total (in round figures) ..	15,000

Working expenses (monthly)—

	Rs.
1. Establishment —	
Head Mistri	50
Mechanic, one	30
Linenen, 3 at Rs.20 each	60
Coolies, 6 at Rs.12 each	72
Stores Clerk	40
Chaukidars, two	20
Peon, one	12
2. Electric current charges for 9,000 units (reckoning an average consumption of two-thirds of a unit per ghanni per hour) at 1 anna per unit	563
3. Renewals and replacements	78
4. Miscellaneous stores and other requirements including lubricating oils	30
5. Interest at 6 per cent. and depreciation at a flat rate of 7½ per cent. on the capital outlay	170
6. Interest on the running capital (say Rs. 15,000 being provision for two months' expenses) at 6 per cent. per annum ..	75
Total ..	1,200

(With 22 ghannies allowing for 2 ghannies under repairs, etc., working 2½ hours and for 26 days in a month, the mill will crush 2,288 maunds of seed. The crushing expenses per maund will thus amount to Re.0-8-5 only.)

*Income and expenditure statement**Income—*

	Rs.
1. Price to be realized from sale of 763 maunds of oil (taking the yield at 33 per cent. on seed, 2,288 maunds) at Rs.8-14-6 per maund	6,792
2. Price to be realized from sale of cake—estimated yield 1,525 maunds at Re.1-3 per maund	1,811
Total ..	8,603

Expenses—

	Rs.
1. Cost of 2,288 maunds of mustard seed (delivered at the mill) at Rs. 3-2 per maund	7,150
2. Crushing charges as shown above	1,200
3. Other incidental charges (e.g. for transport)	100
4. Profits and overhead expenses	153
Total ..	8,603

In case the mill works throughout the year, the rate of electric current will go down appreciably, reducing the working expenses by about Rs.100 per month.

APPENDIX

Statement of Loans advanced by the

(Para. 109

NOTE—All major loans were sanctioned by Government after consulting the Board of Industries of Loan Commissioners. A notable exception was in the case of the two loans of 6 and 4 lakhs respectively of the Board of Industries. Loans to Co-operative Banks were sanctioned by the Registrar, by Government on the recommendation of the Director of Industries.

Serial no.	Number and date of the G. O. sanctioning the loan	Name of recipient	Object for which the loan was granted	Rate of interest	Nature of the security	Amount of the loan advanced
1	2	3	4	5	6	7
A—LARGE LOANS (OVER Rs.10,000)						Rs.
1	No. 70-C, dated the 30th December, 1917.	Mr. I. D. Varshni, United Provinces Glass Works Ltd., Bahjoi, district Moradabad.	Establishing a glass factory.	6%	Factory buildings and machinery.	20,000
2	No. 2532/XVIII—N, dated the 26th September, 1922.	Ditto ..	For a window sheet glass plant.	7½% (penal rate 8½%)	Ditto ..	1,00,000
3	No. 700-I/XVIII—757, dated the 28th November, 1928.	Ditto ..	Manufacture of plate glass.	7% (penal rate 8%)	Ditto ..	40,000
4	No. 626/XVIII—586, dated the 25th March, 1918.	Mr. A. H. Mirza of the Ramnagar Kutch Factory, Bareilly.	Manufacture of catechu (knaththa) for use as dyeing and tanning material on a commercial basis.	6%	Factory and landed property.	30,000
5	No. 1582/XVIII—609, dated the 2nd September, 1919.	Mr. M. A. Latif of the Coronation Flour Mills, Allahabad.	For machinery and buildings to develop his existing flour mills.	6%	Landed property and buildings and machinery of the factory.	20,000
6	No. 1769, dated the 24th August, 1920.	Mr. K. P. Bhargava of the Naini Glass Works, Naini, Allahabad.	For making a new glass furnace and general extension of the factory.	6% (penal interest 8%)	Factory building and landed property, also movable property of the factory.	16,000

V—TABLE I

*Industries Department since 1917**(report)*

up to the year 1921-22, whereafter they have been sanctioned on the recommendations of the Board
tively granted to the Karundia Industrial Company in 1922-23 which was sanctioned in spite of the
Co-operative Societies, in agreement with the Director of Industries. Loans to ex-students were sanctioned

Balance due on 1st October, 1933	Amount waived	Progress on the recovery of the loan (also terms of repayment)	Remarks on the results achieved by the grant of the loan
8	9	10	11
Rs.	Rs.		
3,804	..	The first loan was recoverable in 12 annual instalments of Rs.2,000-/- interest by 1st October, 1933, the second in 20 half-yearly equated instalments of Rs.7,196 by 1st October, 1933, the third in four annual instalments of Rs.10,000-/- interest by 1st December, 1932. Payment was made regularly till August, 1929, when owing to loss of business grace was allowed. Next year again postponement was applied for and conceded. Only partial payment was made in the years 1931-32 and 1932-33. Government have recently agreed to consolidate the three loans into one, repayable in 16 equated half-yearly instalments of Rs.7,096, the first instalment to fall due on 1st March, 1934. The proposal amounts to extending the time for payment by seven years and the waiving of interest to the extent of Rs.7,480.	These three loans stand out benefited the Glass industry, in particular by helping to establish the manufacture of sheet glass. This is perhaps the only sheet glass manufactory in Asia excepting Japan. The firm has lately suffered from Japanese competition considerably, otherwise it might not have defaulted.
43,140	..		
35,034	..		
Nil ..	Nil ..	The loan was to be recovered in 10 annual instalments of Rs.3,000 (the first to be paid on 18th April, 1922) by 18th April, 1931; but it was repaid in full on 27th February, 1920, when the concern was taken over by Messrs. Gillanders Arbuthnot and Co.	The loan was successful in the establishment of the only organized catechu factory in India.
8,890	Still under recovery.	The loan was to be recovered in ten annual instalments of Rs.2,000 (-/-interest), starting from September, 1923, by 1932. The first default was made in 1924 and postponements were allowed; it was made clear that with effect from 1926 the terms of the agreement would be strictly enforced. Since then the instalments were paid regularly until the instalment due in September, 1933, for which postponement has been requested.	It is doubtful whether the flour-milling industry has been benefited by this loan. The mill was closed several years ago.
Nil ..	Nil ..	The loan was recoverable in ten annual instalments of Rs.1,600 each, the first instalment to be paid in September, 1923. The amount was paid in full in 1932-33. There was default in respect of one instalment in 1927 resulting in the penal rate of interest being charged.	The factory and the industry benefited by the loan. The factory is now doing well and is successfully manufacturing fancy articles, e.g., electric lamp shades, etc.

APPENDIX

Serial no.	Number and date of the G. O. sanctioning the loan	Name of recipient	Object for which the loan was granted	Rate of interest	Nature of the security	Amount of the loan advanced
1	2	3	4	5	6	7
						Rs.
7	No. 667/XVIII—261, dated the 11th April, 1922.	Mr. B. B. Shukla of the Inks Factory, Cawnpore.	For purchasing printing ink making machinery.	7%	Landed property	12,000
8	No. 879-L, dated the 25th October, 1922.	Karundia Industrial Development Co., Ltd., Lucknow.	For completing and working the Lucknow Flour Mills.	8%	The mills ..	4,00,000
9	No. 879-L, dated the 25th October, 1922.	Karundia Industrial Development Co., Ltd., Lucknow.	For completing and working the Lucknow Sugar Mills.	8%	The mills ..	6,00,000
10	No. 2204, dated the 6th December, 1924.	The Allahabad Law Journal Co., Ltd., Allahabad.	For the purchase of new typecasting machines for the Hindustani Type Foundry, Allahabad.	7% (penal interest 8%).	All existing machinery, buildings, furniture and stock in trade, also new machinery proposed to be purchased out of the loan money.	22,000
11	No. 2080, dated the 12th November, 1924.	The Shri Mahalaxmi Sugar Corporation, Ltd., Lucknow.	For the purchase of sugar machinery.	7%	The mills ..	1,20,000

V—TABLE I—(continued)

Balance due on 1st October, 1933	Amount waived	Progress in the recovery of the loan (also terms of repayment)	Remarks on the results achieved by the grant of the loan
8	9	10	11
Rs.	Rs.		
6,115	(See column 10.)	The loan was recoverable in nine instalments of Rs.1,333-5-4+ interest; the first to be paid in April, 1924. There was default in the very first year and Government ordered recovery of the entire amount as, however, Mr. Shukla's surety started making payments, action was withheld. Eventually, a civil suit for the recovery of the balance was filed in July, 1931. A decree has been obtained but the amount has not yet been realized as suitable bids have not been forthcoming. Government propose to take over the property in satisfaction of the loan.	The loan was given to a man trained at and assisted by the Harcourt Butler Technological Institute to manufacture printing inks. Though it helped in setting up the printing ink industry for the first time, the industry has not been established nor has the particular business prospered.
Nil	Rs. 5,68,541 (including interest).	The loan was repayable in seven years, the first annual instalment being due in October, 1923. No instalment was, however, paid. In 1929 Government had to write off the entire amount due—Rs.4,00,000 principal and Rs.1,68,541 interest. The liquidators of the company sold the mill for Rs.7½ lakhs which was not sufficient to satisfy even the prior claims of the Central Bank of India.	This loan was a complete failure. The Board of Industries did not recommend this loan. Government sanctioned it on their own initiative.
Nil	Rs. 2,23,781 plus all outstanding interest.	The loan was recoverable in five instalments of Rs.1,20,000+interest. Up to December, 1928, the Company paid only Rs.1,94,000. In 1930 Government accepted Rs.4,06,000 in full settlement of the loan and waived the balance due.	The sugar mill was defective from the beginning and never worked successfully. The concern is reported to have decided to go into voluntary liquidation.
Nil	Nil.	The loan was repayable in five equal instalments of Rs.4,400. Government suspended payment for two years, i.e. up to November, 1927, but demanded full payment by November, 1929. It was actually cleared in January, 1930.	Typecasting machines have been set up and are working. But, apart from helping the particular firm, the loan does not appear to have given any noticeable impetus to the industry.
Nil	Rs. 2,000 plus all outstanding interest.	The amount was recoverable in four equal instalments of Rs.30,000, the first to be paid in July, 1926. The Company paid the first instalment in 1926-27, but subsequent payments were made by the Peoples' Bank of India who paid Rs.88,000.	The loan was a failure; the factory was located at an unsuitable place and is not working well even in the present boom.

APPENDIX

Serial no.	Number and date of the G. O. sanctioning the loan	Name of recipient	Object for which the loan was granted	Rate of interest	Nature of the security	Amount of the loan advanced
1	2	3	4	5	6	7
12	No. 2261/XVIII—519, dated the 9th December, 1925.	The Indian Bobbin Co., Cawnpore.	To finance the firm ..	6½%	Debentures of the same value.	Rs. 80,000
13	No. 180-I/XVIII—675, dated 16th March, 1928.	Mr. A. H. Mirza, Roorkee.	Manufacture of "meto-china."	7% (penal rate 8%).	Machinery and buildings and Mr. Mirza's personal security.	40,000
14	No. 385/XVIII—124, dated the 9th March, 1931.	Mr. Ram Narain Khanna of Messrs. R. N. K. Shannon & Co., Moradabad.	Development of his existing brassware business.	7% (penal interest 8%).	House property (building).	15,000
A—TOTAL, LARGE LOANS --14 LOANS ..						{ Total sum advanced .. 15,15,000 { Total sum waived .. 8,74,322 { Total under recovery .. 1,34,473
B—SMALL LOANS—UP TO Rs. 10,000						
1	No. 980/XVIII—125, dated the 24th June, 1931.	Mr. Panna Lal Khandelwal, Proprietor of Messrs. P. Cool & Co., Lucknow.	Manufacture of disinfectants and the development of the existing business of the Victoria Tar and Antiseptic Works.	7½% (penal rate 8½%).	House and land	8,000
2	No. 701, dated the 7th April, 1925.	Mr. Bhagwat Prasad Srivastava, Basti.	To prepare a metal working model of an automatic spinning machine which he had invented.	7% (penal rate 9%).	Landed property	2,000

V—TABLE I—(continued)

Balance due on 1st October, 1933	Amount waived	Progress in the recovery of the loan (also terms of repayment)	Remarks on the results achieved by the grant of the loan
8	9	10	11
Rs.	Rs.		
Nil	80,000	The amount was repayable in four years. Full amount with interest had, however, to be written off in August, 1929. Government held shares in the Company and this amount was advanced on the security of the debentures. Government had to write off the share money also.	The industry was of a pioneer nature but did not work successfully. Government being one of the promoters of the Company lost not only their share of the capital but also the amount of this loan.
28,490	Still under recovery.	The amount was recoverable in ten annual instalments of Rs.4,000 each, the first instalment being due at the end of two years from the date of payment of the loan. Mr. Mirza has not been regular in payment. His property has been attached but recently he has been permitted to sell some of his machines and has agreed to repay the entire amount by the end of 1934-35. He has started making payments already.	It was a pioneer and, to some extent, an experimental industry. The borrower believed that with more efficient management it should have prospered.
9,000	Still under recovery.	The amount is repayable in six annual instalments of Rs.2,500 each, the first being payable one year after the date of execution of the mortgage deed. The amount is being repaid regularly. They propose to repay the amount earlier.	The firm wanted to develop its export business by advertisement, etc. The scheme did not materialize on account of the trade depression. The loan has been utilized for the ordinary business of the firm.
Nil	Nil	The amount was repayable in five annual instalments of Rs.1,600 each, the first to be paid one year after the date of execution of the deed. The first instalment was not paid and the mortgaged property was sold by auction. The proprietor (Mr. Panna Lal Khandelwal) has, however, petitioned to Government to have the sale cancelled and has offered to pay up the entire amount due from him. This petition is still under consideration.	The firm could not carry on its business of tar and antiseptics manufacture on the expected scales. But the loan though fully recovered must be put down as having failed to achieve its object, in fact even the proprietor's house has had to be auctioned to realize the Government dues.
Nil	Rs. 129-5-6 was remitted as interest.	The amount was recoverable in five equal instalments of Rs.400 each, and was recovered in four years.	The loan did not assist the manufacture of any useful machinery.

APPENDIX

Serial no.	Number and date of the G. O. sanctioning the loan	Name of recipient	Object for which the loan was granted	Rate of interest	Nature of the security	Amount of the loan advanced
1	2	3	4	5	6	7
						Rs.
3	No. 515/ XVIII—217, dated the 17th March, 1926.	Mr. Radha Krishna Bhargava, Muttra.	To start a match factory.	7% (penal rate 8%).	Land and house property.	5,000
4	No. 412/ XVIII—217, dated the 17th February, 1928.	Mr. Radha Krishna Bhargava, Muttra.	For his match factory	7 % (penal rate 8%).	House property	5,000
5	No. 180/ XVIII—259, dated the 27th January, 1931.	Messrs. Wali Muhammad, Abdul Razak and others of Agra.	For the improvement of their tanning business.	6½ % (penal rate 7½ %).	House property, tanning machinery, plant and engines.	6,000
6	No. 2373/ XVIII—22, dated the 13th January, 1932.	Messrs. Mumtaz Hussain & Sons, Ranikhet.	To develop their jam making business, and to start fruit canning.	6½ % (penal rate 7½ %).	Zamindari property and buildings.	10,000
TOTAL, B—SMALL LOANS—6 LOANS ..						36,000
						Total sum waived .. 1,714-5-6
						Total sum under recovery .. 14,650
C—LOANS TO CO-OPERATIVE BANKS						
1	Registrar's no. 40/C, dated the 23rd March, 1925.	Central Co-operative Bank, Ltd., Tanda, district Fyzabad.	To develop cottage industries.	7%	Security of the Bank.	5,000

V—TABLE I—(continued)

Balance due on 1st October, 1933	Amount waived	Progress in the recovery of the loan (also terms of repayment)	Remarks on the results achieved by the grant of the loan
8	9	10	11
Rs. Nil	Rs. Nil	Nothing was paid by Mr. Bhargava and ultimately Government sold the mortgaged property realizing Rs.8,500 only out of a loan of Rs.10,000 plus interest (a second loan no. B-4 was also advanced) Mr. Bhargava has, however, filed a suit against Government protesting against the sale and the case is proceeding.	The match factory like other match factories on its cottage lines failed, it was really an experimental venture. The Tariff Board found that the match industry was unsuitable for hand work on cottage lines and commented on the propaganda carried on by the match expert of a certain province in favour of such works.
Nil	Rs. 1,585 plus all outstanding interest.	The amount was repayable in five equal instalments in six years. Nothing was paid. The mortgaged property was sold for Rs.8,500 but the matter is still under dispute vide note on B-3.	Same remarks as for column 11 of B-3.
4,000	Still under recovery.	The amount is repayable in six annual instalments the first was payable a year after execution of deed. They are paying the instalment, though there was a default in 1932-33, on which they paid the penal rate of interest.	The tanning industry is very dull these days. The loan has helped the firm but is not known to have had any effect upon the tanning industry of Agra.
Rs.10,650 (including interest).	Ditto	The amount is repayable in ten annual instalments of Rs.1,000 each; the first to be paid one year after execution of the deed. Government have postponed the first instalment till January, 1934.	The firm has planted a big garden and is doing fairly well in jam-making. The business is expected to pay after a year or so when the fruit trees are full grown.
Nil	Nil	The amount was repayable with interest in four annual instalments of Rs.500 each and four of Rs.750 each. The amount was, however, repaid within two years. The Bank did not require any money at 7 per cent. for industrial loans.	No useful purpose was served. The Bank could finance the members from its own funds raised on lower interest.

APPENDIX

Serial no.	Number and date of the G. O. sanctioning the loan	Name of recipient	Object for which the loan was granted	Rate of interest	Nature of the security	Amount of the loan advanced
1	2	3	4	5	6	7
2	Registrar's no. 41/C, dated the 23rd March, 1925.	District Co-operative Bank, Bijpur.	To develop cottage industries.	7%	Security of the Bank.	Rs. 5,000
3	Registrar's no. 3191, dated the 25th March, 1925.	District Co-operative Bank, Barcilly.	Ditto ..	7%	Ditto ..	4,000
4	Registrar's no. 3294, dated the 3rd April, 1925.	District Co-operative Bank, Agra.	Ditto ..	7%	Ditto ..	6,000
5	Registrar's no. 2922, dated the 22nd January, 1926.	District Co-operative Bank, Bijpur.	Ditto ..	7%	Ditto ..	10,000
6	Registrar's letter no. 3872, dated the 27th March, 1926.	United Provinces Arya Central Co-operative Bank, Ltd., Lucknow.	To develop hosiery industry and other cottage industries.	7%	Ditto ..	3,000
	Registrar's letter no. 3266, dated the 26th January, 1927.	District Co-operative Bank, Kheri.	For the purchase of raw materials for the Brass Workers' Society, Oel.	7%	Ditto ..	7,000
8	Registrar's letter no. 5756, dated the 17th June, 1927.	District Co-operative Bank, Agra.	For starting an industrial branch of the Bank at Agra.	7%	Ditto ..	10,000

V—TABLE I—(continued)

Balance on 1st October, 1933	Amount waived	Progress in the recovery of the loan (also terms of repayment)	Remarks on the results achieved by the grant of the loan
8	9	10	11
Rs.			
Nil	Nil	The amount was repayable in 10 annual instalments of Rs.500 each plus interest. The amount was actually repaid by 18th May, 1928. The Bank did not need the money then. No amount was advanced to the glass-makers society nor to the blanket-weaver's society.	Same as for column 11 of C-1.
Nil	Nil	The amount was repayable in 10 half-yearly instalments of Rs.400 each plus interest. The amount was, however, repaid in full by 21st May, 1926, for reasons given above.	Shoe-makers are said to have been assisted by this loan.
Nil	Nil	The amount was repayable in ten yearly instalments of Rs.600 each but was actually repaid by 22nd November, 1927.	It was utilized to finance durri-makers, weavers and shoe-makers. Some of the societies are in existence even now.
Nil	Nil	The amount was repayable in ten yearly instalments of Rs.1,000 each, and was fully repaid by 24th June, 1927.	The loan assisted the blanket weavers and glass workers. It was repaid soon as cheaper money was available.
Nil	Nil	The amount was repayable in six half-yearly instalments of Rs.500 each. It was repaid by 25th September, 1928.	The amount was taken to help the Hosiery Makers' Co-operative Society. The Society did not work well and was liquidated. The loan was repaid by the Bank.
Nil	Nil	The amount was repayable in five half-yearly instalments, but was repaid by 8th July, 1927, as the Bank had enough cheap money.	The amount was spent on financing the Brassware Co-operative Society. The Society did very well in the beginning, the business going up to Rs.1,25,000 but later, party factions brought it down and the prospects are not reputed to be bright.
10,000	Still under recovery.	Interest only is being paid. The principal amount cannot be repaid at present by the Bank on account of trade depression. The Registrar reports that the principal would remain as a sort of permanent investment for some time.	The loan is reported to have done some good to the durri-weavers who are being financed with this loan.

APPENDIX

Serial no.	Number and date of the G. O. sanctioning the loan	Name of recipient	Object for which the loan was granted	Rate of interest	Nature of the security	Amount of the loan advanced
1	2	3	4	5	6	7
9	Registrar's letter no. 380/M.C., dated the 18th December, 1927.	Central Co-operative Bank, Sandila (Hardoi).	For advance to Co-operative Yarn Store.	7%	Security of the Bank.	Rs. 5,000
10	Registrar's letter no. 4666, dated the 30th March, 1928.	Mason Industrial Co-operative Federation, Bara Banki.	To develop cottage industries.	7%	Security of the shares of the Federation.	5,000
11	Registrar's letter no. , dated the 28th September, 1931.	District Co-operative Bank, Limited, Bijwar.	To help the Nagina Glass Workers' Society.	7%	Security of the Bank.	5,000
TOTAL, C—LOANS TO CO-OPERATIVE BANKS—11 LOANS.				{ Total sum advanced .. Total sum waived .. Total sum under recovery		65,000 4,500 17,000
D—LOANS TO EX-STUDENTS						
	No. 2207-C, dated the 7th September, 1921.	Pandit Hari Dat Joshi, Almora.	For purchasing knitting machinery.	..	Personal security of self and another surety.	300
2	No. 649/XVIII—236, dated the 22nd March, 1926.	Mr. Hira Lal Misra, Benares.	For the purchase of tools and materials.	6½%	Ditto ..	300
3	No. 649/XVIII—236, dated the 22nd March, 1926.	Mr. Hira Ballabh Pandey, Almora.	Ditto ..	6½%	Ditto ..	400

V—TABLE I—(continued)

Balance due on 1st October, 1933	Amount waived	Progress in the recovery of the loan (also terms of repayment)	Remarks on the results achieved by the grant of the loan
8	9	10	11
Rs. Nil	Rs. 4,500	The amount was repayable in ten annual instalment of Rs.500 each. Only one instalment was paid and the balance had to be written off on the recommendation of the Co-operative Department. A sum of Rs.3,932 was advanced to the Central Co-operative Store and the balance to weavers' societies. The Sundika Bank had to be liquidated and no further recoveries were found possible.	The yarn store is reported to have outlived its worst days and its future is not now dark. The amount was lost due to the mismanagement of the Bank.
Rs. 3,000 plus interest (due on 31st October, 1932).	Nil	The amount was advanced to finance the weavers of Para Banki and the leather workers of Rudauli. The amount was recoverable in ten instalments of Rs.500 each.	The Registrar reports that the societies financed by the loan exist but the business has not prospered as was expected.
Rs. 4,000 plus interest up to 31st October, 1932.	Nil	The loan has been used for the construction of the building sheds, cooling chambers, godowns, etc., for the Co-operative factory at Nagina. This Society also received some grants-in-aid from the Board of Industries.	The loan is reported to have helped the glass workers. But the business is so bad that the Society will probably have to be wound up.
Nil	Nil	The amount was recoverable in 42 monthly instalments of Rs.7-8 which would include interest. It was a small loan.	There are now several small knitting factories working at Almora. How far the loan helped this expansion of the industry cannot be adjudged.
Nil	Nil	The amount was repayable in 30 monthly instalments of Rs.10 each.	
Nil	Nil	The loan was recoverable in 36 monthly instalments of Rs.13 each and one of Rs.10.	The borrower is in business at Almora.

APPENDIX

Serial no.	Number and date of the G. O. sanctioning the loan	Name of recipient	Object for which the loan was granted	Rate of interest	Nature of the security	Amount of the loan advanced
1	2	3	4	5	6	7
4	No. 478/ XVIII-- 174, dated the 12th March, 1927.	Mr. U. N. Vatal, Cawnpore.	For the purchase of tools and materials.	6½%	Personal security of self and another surety.	Rs. 1,000
5	No. 373/ XVIII-- 36, dated the 9th March, 1931.	Mr. Adya Nath ..	Ditto ..	7½%	Ditto ..	600
6	No. 1317/ XVIII-- 195, dated the 9th August, 1931.	Mr. Ram Adhar, Awasthi, Central Weaving Institute, Benares.	Ditto ..	7½%	Ditto ..	400
7	No. 591/ XVIII-- 34, dated the 29th March, 1932.	Mr. Rati Ubah Khan, Tanning School, Fatehpur.	Ditto ..	7½%	Ditto ..	500
TOTAL, D—LOANS TO EX-SUDENTS—7 LOANS						Rs. 3,500
						Total sum advanced ..
						Total sum waived ..
						Total sum under recovery 567-13-3

GRAND TOTAL OF LOANS FOR INDUSTRIAL PURPOSES
GIVEN SINCE 1917.

(1) 14 Large Loans
(2) 6 Small „
(3) 11 Loans to Co-operative Banks..
(4) 7 „, ex-students ..

Total ..

V—TABLE I—(concluded)

Balance due 1st October, 1933	Amount waived	Progress in the recovery of the loan (also terms of repayment)	Remarks on the results achieved by the grant of the loan
8	9	10	11
Rs. a. p.			
Nil	Nil ..	The loan was advanced for starting a leather-working factory. The amount was repayable in 33 monthly instalments of Rs.30 each and a final one of Rs.10.	Mr. Vatal is still in business at Cawnpore.
107 13 8	Still under recovery.	An ex-student of the Arts School. Loan is being repaid in monthly instalments of Rs.16-10-8.	The student is carrying on jewellery work at Lucknow.
166 0 9	Ditto ..	The loan was made for weaving. It is being repaid by monthly instalments of Rs.13 each.	Results not known.
293 14 10	Ditto ..	This loan was for tanning. It is being repaid by monthly instalment of Rs.19-2-3.	Not known.

Total sum advanced
Rs.
15,15,000
36,000
65,000
3,500

16,19,500

Total sum waived
Rs. a. p.
8,74,322 0 0
1,714 5 6
4,500 0 0
..

8,80,536 5 6

Total sum under recovery
Rs. a. p.
1,34,473 0 0
14,650 0 0
17,000 0 0
567 13 3

1,66,090 13 3

APPENDIX V—TABLE II

Classified Abstract of Loans advanced by the Industries Department since 1917-18 arranged by the Industries for which they were given.

A—General Loans :

Name of industry	Name of recipient	Year of sanction	Amount advanced		Total amount advanced for the industry
			Over 10,000	Up to 10,000	
			Rs.	Rs.	
I.—Sugar	1. Karaundia Co., Lucknow.	1922-23	6,00,000	..	7,20,000
	2. Mahalakshmi Co., Lucknow.	1924-25	1,20,000	..	
II.—Flour Milling	1. Coronation Mills, Allahabad.	1919-20	20,000	..	4,20,000
	2. Karaundia, Co., Lucknow.	1922-23	4,00,000	..	
III.—Glass	1. Mr. Varshani, Bahjoi.	1917-18	20,000	..	1,76,000
	2. Naini Glass Works.	1920-21	16,000	..	
	3. Mr. Varshani	1922-23	1,00,000	..	
	4. Ditto ..	1928-29	40,000	..	
IV.—Bobbin Industry.	Bobbin Co., Cawnpore.	1925-26	80,000	..	80,000
V.—Meto-china ..	Mr. Mirza, Roorkee	1927-28	40,000	..	40,000
VI.—Dyes and tanning extract.	Mr. Mirza, Bareilly	1917-18	30,000	..	30,000
VII.—Type-casting	A. L. Journal, Co., Allahabad.	1924-25	22,000	..	22,000
VIII.—Brassware	Shanon & Co., Moradabad.	1930-31	15,000	..	15,000
IX.—Ink	Mr. Shukla, Cawnpore.	1922-23	12,000	..	12,000
X.—Match	Mr. Bhargava, Muttra.	1925-26	..	5,000	10,000
	Ditto ..	1927-28	..	5,000	
XI.—Jam making and fruit canning.	Mumtaz Husain & Sons, Banikhet.	1931-32	..	10,000	10,000
XII.—Disinfectants	P. Khandelwal & Co., Lucknow.	1930-31	..	8,000	8,000
XIII.—Tanning ..	Wali Mohammad A. Razzak, Agra.	1930-31	..	6,000	6,000
XIV.—Spinning ..	Mr. Bhagwat Prasad Srivastava, Basti.	1925-26	..	2,000	2,000
Total, General Loans		..	15,15,000	36,000	15,51,000

(B) The sum of Rs.65,000 advanced to *Co-operative Banks* was utilized by them for giving loans to *Co-operative Societies* of—

- (i) cotton and blanket weavers,
- (ii) durrie-makers,
- (iii) hosiery makers,
- (iv) shoe-makers and leather workers,
- (v) glass workers, and
- (vi) brass workers.

(C) The seven loans to ex-students totalling Rs.3,500 were advanced for purchasing tools and machinery.

APPENDIX VI

Abstract statement of grants sanctioned by the Board of Industries, United Provinces

(Para. 123 of report)

Year	Allotment	Number of grants			Amount of grants		
		Industries		Total	Industries	Education	Total
		Rs.	Rs.				
1921-22 ..	Rs. 15,000	3	6	9	Rs. a. p. 8,500 0 0	Rs. a. p. 5,273 5 4	Rs. a. p. 13,773 5 4
1922-23 ..	15,000	6	6	12	10,900 0 0	4,786 0 0	15,686 0 0
1923-24 ..	15,000	2	10	12	2,000 0 0	12,049 0 0	14,049 0 0
1924-25 ..	25,000	8	18	26	7,528 3 10	17,468 0 0	24,996 3 10
1925-26 ..	30,000*	15	19	64	12,208 11 9	16,346 10 0	28,615 5 9
1926-27 ..	25,000	9	12	21	14,358 12 0	10,641 0 0	24,999 12 0
1927-28 ..	30,000	6	26	32	6,301 11 3	32,816 13 0	39,208 8 3

*This includes an additional grant out of Rs.5,000 directly sanctioned by Government for Messrs. Mehrey and Sons of Allahabad.

APPENDIX VI—(continued):

Year.	Allotment	Number of grants			Amount of grants		
		Industries	Education	Total	Industries	Education	Total
		Rs.	Rs.	Rs.	Rs. a. p.	Rs. a. p.	Rs. a. p.
1928-29 ..	35,000	9	19	28	16,232 13 0	18,767 2 3	34,999 15 3
1929-30 ..	35,000	18	4	22	16,323 0 0	3,200 0 0	19,523 0 0
1930-31 ..	35,000	7	4	11	2,135 0 0	16,200 0 0	18,335 0 0
1931-32 ..	25,000	7	..	7	15,440 0 0	..	15,440 0 0
1932-33 ..	20,000	6	..	6	13,530 0 0	..	13,530 0 0
Total ..	3,14,900	126	124	250	1,25,608 3 10	1,37,547 14 7	2,63,156 2 5

APPENDIX VII—TABLE I

List of Government institutions showing cost, enrolment and employment among passed students
(Paras. 151, 153 and 155 of report.)

Serial number	Name of the institution	Year of opening	Total approximate non-recurring cost up to date		A-verage recurring cost during the three years, 1929-30, 1930-31 and 1931-32	Budget provision for 1933-34 without the emergency cut	Average number during the last three years (1930-31 to 1932-33) of—				Percentage of employment of ex-students (average for last 13 years) or since the opening of the institution whichever is less					
			On plant				On building		Admissions		Passes		In industrial concerns	In their own business	Particulars including those known in- since dead	16
			4	5			Rs.	Rs.	8	9	10	11				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	Harcourt Butler Technological Institute, Calcutta.	1921	3,18,663	8,87,470	Rs. 1,67,921	Rs. 1,77,513	..	14	14	..	12	12	51	14	3	
2	Technical School, Lucknow	1892	1,30,000	4,81,901	66,719	67,822	14	43	57	8	26	34	72.6	24.2	3.2	
3	Ditto Gorakhpur	1911	1,08,086	1,40,767	52,549	51,920	3	58	61	1	31	32	88.2	2.2	9	
4	Ditto Jhansi	1919	14,123	62,193	20,772	21,889	2	14	16	2	15	17	82	3	15	
5	Textile School, Calcutta.	1923	9,400	1,50,000	35,785	39,102	..	46.7	46.7	..	33.7	33.7	97.7	0.6	0.3	
6	School of Dyeing and Printing, Calcutta.	1914	33,000	1,50,000	45,244	49,105	4.7	62	66.7	4.3	38	42.3	68	21	11	
7	Central Weaving Institute, Benares.	1912	24,585	1,44,003	37,625	35,583	17	95	112	11	44	55	42	29.6	20	
8	Weaving and Cotton Printing School, Bulandshahr.	1926	5,630	Nil	14,387	15,318	6	24	30	2.3	9.3	11.6	31	22	21	
9	Model Weaving School, Almorah.	1925	2,172	Nil	5,883	6,244	3	18	21	1	8	9	89	11	..	
10	Model Weaving School, Agra.	1927	1,852	Nil	4,846	5,353	11.3	10	21.3	5	4.3	9.3	42.5	25	32.5	
11	Model Weaving School, Khairabad (Sitapur).	1928	1,721	Nil	3,786	4,546	11	8	19	9	6	15	20.3	58.1	21.6	
12	Model Weaving School, Mau (Azamgarh).	1925	1,000	Nil	2,780	5,202	9.6	9.3	18.9	9.3	9.3	18.6	22.1	63.5	6.7	
13	Model Weaving School, Muzaffarnagar.	1927	1,400	Nil	4,564	5,814	11.7	13.3	25	8	8.3	16.3	29.9	58.5	11.6	

APPENDIX VII—TABLE I—(concluded)

Serial number	Name of the institution	Year of opening	Total approximate non-recurring cost up to date		Average recurring cost during the three years, 1929-30, 1930-31 and 1931-32	Budget provision for 1933-34 without the emergency cut	Average number during the last three years (1930-31 to 1932-33) of—				Percentage of employment of ex-students (average for last 13 years) or since the opening of the institution whichever is less				
			On plant	On building			Admissions		Passes		In industrial concerns	In their own business	Particulars including those since dead		
							Artisans	Non-artisans	Total	Artisans				Non-artisans	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
			Rs.	Rs.	Rs.	Rs.									
14	Model Weaving School, Najibabad (Bijnor).	1925	1,894	Nil	4,739	4,630	11	5	16	7	4	11	18	56	20
15	Wood Working Institute, Bareilly.	1912	3,19,692	6,80,686	1,28,774	1,14,814	21.7	115.3	137	14.6	51.7	63.3	57.5	9.5	33
16	Carpentry School, Allahabad.	1918	33,462	80,189 + 1,01,265	62,588	63,270	12	59	71	11	25	36	36.7	36.2	27.1
17	Carpentry School, Naini Tal.	1926	4,768	Nil	9,689	10,116	2	18	20	1	8.33	9.33	48.9	29.7	21.2
18	Carpentry School, Fyzabad	1926	5,250	Nil	10,307	9,743	1	40	41	1	25	26	44	26	30
19	Carpentry School, Dehra Dun.	1927	5,644	850	8,066	11,733	3.7	21.7	25.4	1.7	4.7	6.4	21	21	26
20	Leather Working School, Cawnpore.	1916	7,185	32,908	29,344	20,697	13	106	119	6	61	67	8	62	31
21	Leather Working School, Meerut.	1921	1,474	23,361	14,736	15,310	3	30	33	1	16	17	49	37	4
22	Tanning School, Fatehpur	1927	1,124	Nil	7,127	8,940	7	5	12	3	7	10	14	40	46
23	Metal Working School, Aligarh.	1926	11,000	650	9,352	17,363	5	8	13	2.33	3.66	6	60	13	27
24*	Batuk Prashad Khattri Industrial Institute, Benares.	1928	7,224	Nil	10,043	14,457	9	5	14	4	1	5	8	17	75
25	School of Arts and Crafts, Lucknow.	1912	15,500	3,61,001	81,300	80,946	10.7	88.6	99.3	1	32.3	33.3	44.6	33.7	22.7

APPENDIX VII—TABLE II
Statement showing the various courses at the Government Technical and Industrial Institutions

Serial number	Name of institution	Name of section or course	Duration of course	Minimum qualifications for admission	Average number of students who passed out during the last three years (1930-31 to 1932-33) after completing the course			Remarks
					Artisans	Non-artisans	Total	
1	2	3	4	5	6	7	8	9
1	Harcourt Butler Technological Institute, Calcutta.	1. Oil section— (a) Diploma course .. (b) Post Diploma course (c) Short courses :— (i) Oil milling .. (ii) Soap making .. (iii) Preparation of oils, paints and varnishes. 2. Sugar section— (a) Sugar Technologist Diploma course. (b) Post Diploma course (c) Sugar Analyst course (d) Sugar Boilers course (e) Foreman Khandisari 3. General Research section— Research ..	2 years .. 2 years .. 6 to 8 months .. 6 to 8 months .. 6 to 8 months .. 2 years .. 2 years .. 2 years .. 1 year .. 1 year .. 2 years ..	B.Sc. in Science or Agriculture Completion of Diploma Course in Oil Technology of the Harcourt Butler Technological Institute. B.Sc. in Science or Agriculture. Ditto .. Ditto .. B.Sc. in Science or Agriculture. Completion of Diploma Course in Sugar Technology. Intermediate certificate with Science .. High School Certificate .. Completion of training in a recognized technical school. B.Sc. in Science or Agriculture ..	.. .. .. .. .. .. .. .. .. .. ..	3 3 2	3 3 2	Started in 1932-33. Started in 1932-33. Ditto. Ditto. Ditto.

APPENDIX VII—TABLE II—(continued)
Statement showing the various courses at the Government Technical and Industrial Institutions—(continued)

Serial number	Name of institution	Name of section or course	Duration of course	Minimum qualifications for admission	Average number of students who passed out during the last three years (1930-31 to 1932-33) after completing the course			Remarks
					Artisans	Non-artisans	Total	
1	2	3	4	5	6	7	8	9
2	Technical School, Lucknow.	(1) Engineering and electrical mechanics class. (2) Light Machine Mechanics class. (3) Artisan class (Electrical Installation). (4) Artisan class for painting. (5) Oil Engine Driving class.	4 years in school and 1 year in a recognized workshop. 3 years .. 3 years .. 3 years .. 6 months ..	High School Examination Certificate with Mathematics and Science as optional subjects. Passed 8th class of Anglo-Vernacular Schools. Abolished with effect from May, 1933 Passed 4th class of Vernacular or Anglo-Vernacular Schools. No standard prescribed. It is desirable for men to be literate in the Vernaculars.	4.6 Nil 3 3 4.1	13.7 .. 3.7 4.6	18.3 .. 6.7 8.7	Combined course of mechanical and electrical mechanics class. Only one student remained in the class which was discontinued and opened in 1930-31.
3	Technical School, Gorakhpur.	1. Mechanic section—Combine mechanical and electrical Engineering course.	3 years in schools and 2 years in a recognized workshop.	Studied in X class of a High School, or high section of a European School or passed the Junior Local Examination of the Cambridge University.	..	15	15	Total passes 46 in 3 years.

No.	Institution	Artisan section— (i) Electric Wiremen's work.	3 years	Upper Primary Examination of Vernacular School or 4th class Examination of Anglo-Vernacular School.	..	2	4	1	1	7	1	17	4·3	14·7	14·0	3·6	8·6	10·6	Total passes 49 in 3 years.
4	Technical School, Jhansi.	(i) Engine and Boiler Attendants work. (ii) Carpentry and pattern making. (iv) Moulding and casting. (v) Iron work (vi) Machine shop work	Do. Do. Do. Do. Do. Do.	Upper Primary Examination of Vernacular School or 4th class Examination of Anglo-Vernacular School.	..	2	4	1	1	7	1	17	4·3	14·7	14·0	3·6	8·6	10·6	Total passes 49 in 3 years.
5	Textile School, Cawnpore.	Mechanical Engineering Apprentice class. (1) Technical class (2) Artisan class (3) Apprentice class	3 years in the school followed by 1 year in a mill. 3 months (2 hours per day for 3 days in a week). 2 years (part- time for 2 hours per day on 3 days in a week).	High School or Junior Cambridge Examination Certificate, with mathematics. High School Examination Certificate Workmen engaged in a mill and recommended by the mill authorities are admitted. No literary qualification is prescribed. Employees of mills who can follow lectures in English along with Technical class students are admitted if nominated by the mills.	..	4·3	14·7	14·0	3·6	8·6	10·6	4·3	14·7	14·0	3·6	8·6	10·6	4·3	14·7
6	School of Dyeing and Printing, Cawnpore.	(1) Foreman Dyers (2) Artisan class	3 years * 2 years	High School Examination Certificate or its equivalent. No particular educational qualification but those with knowledge of Hindi or Urdu and elementary Arithmetic are preferred.	..	3·6	8·6	10·6	3·6	8·6	10·6	3·6	8·6	10·6	3·6	8·6	10·6	3·6	8·6

APPENDIX VII—TABLE II—(continued)
Statement showing the various courses at the Government Technical and Industrial Institutions—(continued)

Serial number	Name of institution	Name of section or course	Duration of course	Minimum qualifications for admission	Average number of students who passed out during the last three years (1930-31 to 1932-33) after completing the course			Remarks
					Artisans	Non-artisans	Total	
1	2	3	4	5	6	7	8	9
7	Central Weaving Institute, Benares.	(1) Senior Weaving course.	3 years	..	..	3	3	Non-artisan course.
		(2) Teacher's Training course.	1 year	..	..	1.6	1.6	
		(3) Artisan course	1 year	..	4.3	16.3	20.6	
		(4) Junior class course ..	1 year	..	3.3	13.3	16.3	
		(5) Advanced class course.	1 year	..	3.6	6.3	10	
		(6) Hosiery class	1 year	..	..	3.3	3.3	
8	Weaving and Cloth Printing School, Bulandshahr.	(1) Weaving section ..	1 year	..	2	5	7	
		(2) Dyeing and Printing section.	2 years	..	0.3	4.3	4.6	

9	Government Carpentry School, Dehra Dun.	Elementary cabinet making.	3 years	..	Students should be able to read and write one of the vernacular languages and should have a knowledge of elementary arithmetic.	1-7	4-7	6-3	
10	Government Metal Working School, Aligarh.	(1) Mechanics class (from 1931-32).	3 years	..	Study up to VIII standard ..	*	*	*	*First batch of students was admitted in 1931-32 and will appear at the final examination in 1934-35.
		(2) Artisan class	2 years	..	No educational qualifications necessary. Preference given to sons of artisans and literate candidates.	+	†	†	†First batch of students was admitted in 1932-33 and will appear at the final examination in 1933-34.
		(3) Final class	3 years	..	..	2-33	3-66	6	This class has been abolished from 1931-32.
11	Government Carpentry School, Naini Tal.	Junior carpentry course	3 years	..	Passed IV class of vernacular or anglo-vernacular school or passing of the admission examination in Hindi or Urdu and elementary arithmetic.	1	8-3	9-3	
12	Government Central Wood-Working Institute, Bareilly.	(1) Cabinet making and joining. (a) Elementary course	3 years	..	Candidates should have studied up to VIII class or its equivalent, preference being given to candidates who have passed the High School Examination with manual training as optional subject.	1-3	12-3	13-6	
		(b) Advanced course	2 years	..	Students who have passed the elementary course successfully.	4	9-3	13-3	

APPENDIX VII—TABLE II—(continued)
Statement showing the various courses at the Government Technical and Industrial Institutions—(continued)

Serial number	Name of institution	Name of section or course	Duration of course	Minimum qualifications for admission	Average number of students who passed out during the last three years (1930-31 to 1932-33) after completing the course			Remarks
					Artisans	Non-artisans	Total	
1	2	3	4	5	6	7	8	9
	Government Central Working Institute, Bareilly—(concid.)	(c) Foreman course.. (d) Artisan course ..	2 years .. 2 years ..	Students who have passed the advanced course successfully. No educational qualification prescribed but candidates must be following the trade of a carpenter.	1 5.3	1.6 5	2.6 10.3	
		(2) Machine tool course	3 years ..	Students should have read up to VI standard preference being given to those who have a knowledge of wood-work or metal work.	.7	7.3	8	
		(3) Painting, polishing and wood finishing course.	2 years ..	No educational qualification is prescribed.	3	8.6	10.6	
		(4) Upholstery course ..	2 years ..	Ditto ..	.2	5.3	5.6	
		(5) Kiln seasoning course	1 year ..	Candidates should have passed the High School or S. L. C. examination with Science. Admission to this course is restricted to 5 candidates.	..	2.3	2.3	
13	Government Leather Working School, Meerut.	Boot and shoe-making, also leather articles.	2 years ..	Candidates should have studied up to the lower primary school.	1	16	17	

	(1) Fine arts	..	5 years	Should have passed IX class and be able to read English.	..	2-3	2-3	Formerly the course was divided into 3 groups, i.e. (2), (3) and (4). Now it is into 4 groups, as shown in column 3. Hence the average shown in columns 6, 7 and 8 is a combined average for groups (1), (2) and (3). No student has yet appeared in the final examination in group (4).
School of Arts and Crafts, Lucknow.	(1) Industrial arts :— (a) Goldsmith class. (b) Silversmith class (c) Brass and copper-smith work. (d) Iron work class (e) Woodwork class (f) Process class (g) Drawing from reproduction. (h) Architectural design and draughtsmen class. (i) Drawing teachers' training class.	..	5 years 5 years 5 years 5 years 5 years 5 years 5 years 5 years 2 years	Should have passed VIII standard Ditto Ditto Ditto Ditto Ditto Should have passed IX class Ditto	.. .. .. .. .. .. .. .. ..	5-7 1 .. 1 5-6 3-7 .. 5 8	6 1-3 .. 1 6 3-7 .. 5 8	4-33
Batuk Prasad Khatri Industrial Institute, Benares.	(1) Shape-making, polishing and turning. (2) Engraving and enamelling. (3) Repoussé and chasing (4) Metal casting and modelling or pattern making.	..	5 years for non-artisan boys and 3 years for artisan boys.	Non-artisan boys are supposed to have only a very little knowledge or to have no previous knowledge at all of the work they wish to learn; but a knowledge of reading, writing and drawing, etc. up to the VIII standard of anglo-vernacular schools is required. Artisan boys are expected to have a fair knowledge of the work they wish to learn, i.e. they know something of the work and are desirous of improving their technique and design. N.B.—Drawing and design is a compulsory subject for all the sections throughout the course.	4	..	4-33	Formerly the course was divided into 3 groups, i.e. (2), (3) and (4). Now it is into 4 groups, as shown in column 3. Hence the average shown in columns 6, 7 and 8 is a combined average for groups (1), (2) and (3). No student has yet appeared in the final examination in group (4).

APPENDIX VII -TABLE II--(concluded)

Statement showing the various courses at the Government Technical and Industrial Institutions---(concluded)

Serial number	Name of institution	Name of section or course	Duration of course	Minimum qualifications for admission	Average number of students who passed out during the last three years (1930-31 to 1932-33) after completing the course			Remarks	
					Artisans	Non-artisans	Total		
1	2	3	4	5	6	7	8	9	
16	Government Carpentry School, Allahabad.	(1) Artisans' class (2) Wood working : (a) General working class. (b) Advanced wood-working class (c) Teachers' Training class. (3) Polishing and painting class. (4) Upholstery class	2 years 3 years 3 years 2 years 3 years 3 years	No educational qualifications are required, but students must have a practical knowledge of carpentry. Preference is given to candidates who have studied up to High School standard. Admission is made on completion of course (2), or proved capacity to undertake advanced study. Admission is made on selection from men who have completed and passed the advanced course. No educational qualifications are prescribed. Some knowledge of one of the vernaculars. Ditto Preference is given to candidates who have read up to VIII standard.	4.33 4.6 1.66	1.0 14.6 4.33 3.0 1.6 3	5.33 19.2 6 3 1.6 3		
17	Government Carpentry School, Fyzabad.	Wood-working course	3 years	1	25	26	
18	Government Leather Working School, Cawnpore.	Boot and shoe-making, and sundry leather articles.	2 years	

19	Government Training School, Fatehpur.	Tanning, preparation of leather and finishing of various kinds of leathers.	2 years	..	Candidates should be able to follow the instruction given in the school, and to take down notes.	3	7	10
20	Model Weaving Schools.	(1) Practical and theoretical instruction in handloom weaving. (2) Instruction in improved and more economical methods of winding, warping, sizing, beaming and weaving.	1 year	..	No educational qualifications are insisted on in the case of artisans from weaving classes who come to the school to improve their technique. In the case of others, candidates must possess sufficient general knowledge to be able to follow the instruction imparted.	..	..	..

APPENDIX VIII—TABLE I

(Para. 201 of report)

List of aided institutions arranged by districts

Serial no.	Name	Budget provision for 1933-34	Serial no.	Name	Bud get provision for 1933-34
	AGRA	Rs.		GORAKHPUR	
1	C. M. S. Industrial Mission Boys' School, Sikandra.	1,200	26	District Board Weaving School ..	720
2	St. Josephs' Orphanage Industrial School.	480		HAMIRPUR	
3	Technical College, Dayal Bagh, Agra	29,147	27	District Board Weaving School, Mahoba.	720
	ALIGARH			HARDOL	
4	Muslim Weaving School ..	780	28	Hadi Memorial School ..	1,464
	ALLAHABAD			JALAUN	
5	Municipal Leather Working School	3,962	29	District Board Weaving School, Orai	720
6	Lady Hewett Industrial Girls' School, Phulpur.	720	30	District Board Weaving School, Kalpi.	720
	ALMORA			JHANSI	
7	District Board Carpentry School ..	1,667	31	Din Hitkarani Sabha Carpentry School	1,307
	BARA BANKI			LUCKNOW	
8	Hewett Weaving School ..	2,000	32	Muslim Orphanage ..	540
9	Leather Working School, Rudauli ..	1,370	33	All-India Shia Orphanage ..	2,000
	BAREILLY		34	Sri Ram Orphanage for Carpentry Classes.	682
10	Municipal Tailoring Class ..	710	35	Dayanand Orphanage for Carpentry Classes.	1,040
11	Salvation Army Industrial School ..	720	36	Arya Samaj Tailoring School ..	972
12	Arya Samaj Orphanage ..	1,200		MAINPURI	
13	Islamia Orphanage ..	648	37	Kunwar Lalsingh Mansingh Industrial School.	3,284
	BENARES			MEERUT	
14	Wesleyan Mission Industrial School	2,400	38	Mission Weaving School, Jeyi ..	180
15	Home for women in distress ..	600	39	Vaish Orphanage Technical School	900
16	Benares Hindu University Pottery classes.	1,350	40	Lalkurti Hosiery School ..	1,040
	BULANDSHAHR		41	Muslim Orphanage ..	420
17	Depressed Classes Industrial School, Khurja.	960		MORADABAD	
	CAWNPORE		42	Municipal Industrial School ..	1,500
18	Hindu Orphanage ..	400		MUTTRA	
19	Muslim Orphanage Carpentry School	550	43	Municipal Weaving School, Muttra City.	720
	ETAWAH			PARTABGARH	
20	Industrial School, Manikpur ..	3,582	44	Mission Weaving School ..	720
	FARRUKHABAD			SAHARANPUR	
21	District Board Industrial School, Naugawan.	1,520	45	A. P. Mission Industrial School	1,202
	GARHWAL			SHAHJAHANPUR	
22	District Board Weaving School, Karan Prayag.	600	46	District Board Weaving School for Carpet and Durrie Weaving Class.	720
23	District Board Carpentry School, Srinagar.	1,282			
	GONDA				
24	Aman Sabha Carpentry School ..	1,329			
25	District Board Weaving School ..	951			

APPENDIX VIII—TABLE II
Statement showing certain particulars regarding Aided Industrial Schools
(Arranged according to Industries)

Serial number	Name of school	Management	Year of opening	Courses and their duration		Recurring cost		Number of instructors on the staff	Enrolment		Average number of passes during the ten years ending with 1931-32	Percentage of employment among ex-students		Remarks
				Name of course	Duration	Average total cost for the three years 1929-30 to 1931-32	(Government grant in 1933-34)		Average number of students on roll during the ten years ending with 1931-32	Percentage of artisans		In industrial concerns	In their own business	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	I—WEAVING SCHOOLS						Rs.			Per cent.		Per cent.	Per cent.	
1	Muslim University Weaving School, Aligarh.	Muslim University.	1922	Handloom Weaving (equivalent to Artisan Course of Government Model Schools).	2 years	2,308	780	2	19	50	5	70	30	
2	Hewett Weaving School, Bareilly.	Local Committee under the Collector of the district.	1907	Artisan Weaving ..	1 year	3,362	2,000	3	32.3	1	13.7	..	..
3	Salvation Army Industrial School, Bareilly.	Salvation Army Organization.	1908	Artisan Weaving	3½ years	1,440	720	1	33	..	3	..	..
4	District Board Weaving School, Karanprayag, Garhwal.	District Board	1926	Artisan Weaving ..	1½ year	854	600	1	11	..	..	..	..

APPENDIX VIII—TABLE II—(continued)

Serial number	Name of schools	Management	Year of opening	Courses and their duration		Recurring cost		Number of instructors on the staff	Enrolment		Average number of passes during the ten years ending with 1931-32	Percentage of employment among ex-students		Remarks
				Names of courses	Duration	Average total cost for the three years 1929-30 to 1931-32	Government grant in 1933-34		Average number of students on roll during the ten years ending with 1931-32	Percentage of artisans during with 1931-32		In industrial concerns	In their own business	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	I—WEAVING SCHOOLS —(continued)						Rs.			Per cent.		Per cent.	Per cent.	Figures for 1928-29 not taken into account as no examination was held that year.
5	District Board Weaving School, Gondal.	District Board	1928	Artisan Weaving ..	1 year	1,587	710	1	14	11	5	..	21	Figures for 1928-29 not taken into account as no examination was held that year.
6	District Board Weaving School, Gorakhpur.	Ditto	1925	Ditto	Do.	2,506	720	2	12	14	11	32	36	
7	District Board Weaving School, Mahoba, Hamirpur.	Ditto	1925	Ditto	Do.	3,547	720	1	8	74	7	3	77	
8	District Board Weaving School, Orai, district Jalun.	Ditto	1925	Ditto	2 years	3,300	720	1	11	47	6	20	43	
9	District Board Weaving School, Kalpi, district Jalun.	Ditto	1926	Ditto	Do.	1,080	720	1	10	26	4	37	44	
10	District Board Weaving School, Jhansi.	..	..	..	..	..	..	..	..	..	..	..	..	Abolished from September 16, 1932.

11	Mission Weaving School, Jeyi, Meerut.	Church Mission Society.	1924	Artisan course, but now it is practically a handloom factory.	1 year ³	1,641	162	1	10	..	..	..	..	..	* Raised to 2 years course from October 1932.
12	Municipal Weaving School, Muttra.	Municipal Board.	1926	Artisan Weaving ..	1 year ⁴	1,423	720	2	10	15	6	62	38	..	
13	Roman Catholic Mission School, Partabgarh.	Roman Catholic Mission.	1923	Ditto ..	Do.	..	720	1	14	..	4	..	..	..
14	District Board Cloth and Carpet Weaving School, Jalaabad, Shahjahanpur.	District Board :	1926	Carpet weaving ..	1 year	1,476	720	1	9	4	7	..	76	..	

N.B.—Weaving is taught along with other subjects in the schools—nos. 27, 31, 36, 38, 39, 40, 41 and 42 shown under Miscellaneous.

II—CARPENTRY SCHOOLS

15	District Board Carpentry School, Almora.	District Board	1927	Artisan Carpentry	2 years	3,455	1,667	1	18	10	7	15	85	..	
16	Muslim Orphanage Carpentry School, Cawnpore.	Orphanage Committee.	1927	Ditto ..	3 years	1,200	550	1	10	..	6	50	50	..	
17	District Board Carpentry School, Srinagar, Garhwal.	District Board	1926	Ditto ..	Do.	997	1,282	1	12	..	4	..	..	..
18	Aman Sabha Carpentry School, Gonda.	Aman Sabha Committee.	1928	Ditto ..	Do.	4,055	1,329	4	26*	10.3	100	25	50	..	* Average of four years. School established in 1928. Not yet on permanent footing.
19	Hadi Carpentry School, Hardoi.	Local Committee under the Deputy Commissioner.	1926	Ditto ..	Do.	3,881	1,404	2	19	5	6	..	75	..	This was formerly under the District Board having been started in 1925.
20	Din Hukarni Sabha Carpentry School, Jhansi.	Din Hukarni Sabha, a registered body (under Act of 1860).	1932	Ditto ..	Do.	..	1,307	2	..	..	..	..	..	..
21	Sri Ram Industrial Orphanage, Lucknow.	Orphanage Committee under the Deputy Commissioner.	1927	Artisan Carpentry	3 years	517	682	1	10	..	2	100	..	..

APPENDIX VIII—TABLE II—(concluded)

Serial number	Name of school	Management	Year of opening	Courses and their duration		Recurring cost		Number of instructors on the staff		Enrolment		Average number of passes during the ten years ending with 1931-32	Percentage of employment among ex-students		Remarks
				Name of course	Duration	Average total cost for the three years 1929-30 to 1931-32	Government grant in 1932-34			Average number of students on roll during the ten years ending with 1931-32	Percentage of artisans		In Industrial concerns	In their own business	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	MISCELLANEOUS— (contd.)														
33	Wesleyan Mission Industrial School, Benares.	Wesleyan Mission.	1920	Artisan Wood work " Iron work..	4 years 3 "	12,008	2,400	10	46	5	46	75	25		
34	Benares Hindu University Commerce (Pottery) Class, Benares.	Benares Hindu University.	..	Artisan pottery work	1 year	5,456	1,350	3	40	8	40	5	..		
35	Home for Women in Distress, Benares.	Kashi Unath-alaya Association (registered under Act 21 of 1860).	1926	No fixed course training is given in newar and cotton weaving, knitting.	..	..	600	..	..	..	..	..	..	..	Information not available.
36	Depressed Class Industrial School, Khurja, Bulandshahr.	Local Committee	1927	Artisan Smithy .. " Carpentry .. " Weaving ..	2 years Do. 1 year	3,134	960	3	31	6	4	14	..	..
37	Hindu Orphanage, Cawnpore.	Ditto ..	1913	Artisan Carpentry.. Master Tailor ..	3 years 4 "	1,277	400	2	29	3	2	..	..	..
38	Chauhan Gur Narain Trust Industrial School, Manikpur, Etawah.	Chauhan Gur Narain Trust.	1923	Fitters Course .. Artisan Weaving Course. Junior Weaving Course.	2 " 1 year. 2 years.	7,905	3,582	5	34	6	10	70	10		

	District Board Industrial School, Nawawan, Farukhabad.	District Board..	1925	Weaving Tailoring Do. (now abolished).	Years Do.	7,167	1,520	3	36	15	13	46	28
39	Muslim Murtaz Orphanage, Lucknow.	Anjuman Islahul Musalmeen local committee.	1926	Artisan Carpet Weaving. Do.	4 years	3,225	540	3	29	..	3	..	..
40	All India Shia Orphanage, Lucknow.	Local Committee (registered under Act 21 of 1860.)	1927	Shoe making (artisan). Suit case making (artisan).	3 years 2 years combined.	*4,422	2,000	5	57.5	Nil	10	78	Nil
41	Kunwar Lal Singh Man Singh Industrial School, Mainpuri.	Local Committee	1923	Weaving (artisan). Artisan Carpentry. Tailoring (ordinary). Artisan Weaving. Carpentry. Tarkashi. Tailoring (also a blind class).	3 " 5 " 3 " 1 year. 3 years. 2 years. Do.	2,229	2,517	6	40	11	13	21	62
42	Vaish Orphanage Technical School, Meerut.	Ditto	1898 aided since 1904.	Artisan Carpentry. Ordinary tailoring.	4 years Do.	2,436	900	4	58	*	*	*	*No record.
43	Lalkurty Hosiery School, Meerut.	Ditto	1925	Hosiery (Artisan)	1 year	1,977	1,040	1	10	..	6	60	30
44	Muslim Orphanage, Meerut.	Local Committee	1917	Artisan Carpentry. Ordinary tailoring.	Not fixed	1,100	420	2	35	..	5	*	*Whereabouts not known.
45	Municipal Industrial School, Moradabad.	Municipal Board	1924	Complete brass working.	5 years	3,554	1,500	4	22	2	2	25	16
46	American Presbyterian Mission Industrial School, Saharanpur.	American Presbyterian Mission.	1838	Blacksmith Course Carpentry course. Building Contractor course. Motor Mechanics course. Tailoring course	3 years Do. Do. 3 years. 2 to 3 years.	18,515	1,200	16	46	..	4	25	..

CLASSIFIED ABSTRACT

		B			
A		14	1	District Board Schools	11
1. Weaving Schools	..	..	..	2. Municipal Board Schools	4
2. Carpentry Schools	..	..	..	3. Orphanages	11
3. Leather Schools	..	..	..	4. Others	21
4. Tailoring Schools	..	21	..	Total	47
5. Others	..	47	..		
Total	..	47	..		

APPENDIX IX

Statement of Scholarships and Stipends at the Government Technical and Industrial institutions as provided in the budget for 1933-34
(Para. 206 of report)

Serial number.	Name of institution	Scholarships			Leaving scholarships			Stipends general			Artisan stipends			Leaving stipends			(1) Prize	Total amount sanctioned for 1933-34 (deducting "probable savings")
		Number	Value at	Period (in months)	Number	Value at	Period (in months)	Number	Value at	Period (in months)	Number	Value at	Period (in months)	Number	Value at	Period (in months)		
1	Harcourt Butler Technological Institute, Cawnpore.	(i) 12 (ii) 1	Rs 25 50	4½ 6	..	..	(i) 3 (ii) 2 (iii) 25 (iv) 2 (v) 12 (vi) 6	Rs. 25 60 25 60 8 4	10 10 7½ 7½ 12 12	..	..	..	..	..	..	Rs. 5,063	
2	Technical School, Lucknow.	(i) 33 (ii) 2	10 5	12 12	..	..	..	..	..	..	..	..	44	8	12	(i) 161	9,744 + 161
3	Technical School, Gorakhpur.	6	15	10½	..	..	15	7	10½	12	8	10½	20	8	12	..	9,905
4	Technical School, Jhansi.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	(i) 194	194
5	Textile School, Cawnpore.	(i) 1 (ii) 1 (iii) 1	12 12 12	6 10 9	..	..	(i) 6 (ii) 3	10 10	10 9	..	..	..	..	..	..	(i) 100	946 + 100
6	School of Dyeing and Printing, Cawnpore.	6	10	10½	5	(2) 30	10	8	10½	3	20	10½	2	10	12	..	1,046	
7	Central Weaving Institute, Benares.	(i) 10 (ii) 5 (iii) 10	10 20 12	10½ .. 10½	16	(2) 30	20	8	10½	5	20	10½	..	..	..	..	1,837 3,745

8	Weaving and Cloth Printing School, Bulandshahr.	..	..	2	(2)25	..	..	7	11	..	..	..	..	..	888
9	Model Weaving School, Almorah.	..	..	..	..	..	..	..	..	..	..	..	..	..	396
10	Model Weaving School, Agra.	..	..	..	..	..	..	..	..	..	..	..	..	..	396
11	Model Weaving School, Khairabad (District Sitapur).	..	..	..	..	..	..	..	..	..	..	..	..	..	396
12	Model Weaving School, Mau (District Azamgarh).	..	..	..	..	..	..	..	..	..	..	..	..	..	520
13	Model Weaving School, Muzaffarnagar.	..	..	..	..	..	..	..	..	..	..	..	..	..	396
14	Model Weaving School, Najibabad (District Bijnor).	..	..	..	..	..	..	..	..	..	..	..	..	..	396
15	Wood-Working Institute, Barilly.	(i) 10 (ii) 10 (iii) 2	10 12 15	10 $\frac{1}{2}$ 10 $\frac{1}{2}$ 10 $\frac{1}{2}$	(i) 10 ⁽⁴⁾ (ii) 6 ⁽⁴⁾ (iii) 4 ⁽⁴⁾	20 15	(i) 34 (ii) 14 (iii) 6 (iv) 4	6 8 9 10	10 $\frac{1}{2}$ 10 $\frac{1}{2}$ 10 $\frac{1}{2}$ 10 $\frac{1}{2}$	16	..	..	..	..	7,980
16	Carpentry School, Allahabad.	(i) 2 (ii) 3 (iii) 11	15 12 10	10 $\frac{1}{2}$ 10 $\frac{1}{2}$ 10 $\frac{1}{2}$	(i) 18 ⁽⁴⁾ (ii) 4 ⁽⁴⁾	30 15	..	..	..	(i) 10 (ii) 10 (iii) 5 (iv) 10	5 7 9 10	10 $\frac{1}{2}$ 10 $\frac{1}{2}$ 10 $\frac{1}{2}$ 10 $\frac{1}{2}$	..	(5)200	2,897 +300 3,197
17	Carpentry School, Naini Tal.	..	..	..	4 ⁽⁴⁾	30	(i) 12 (ii) 12 (iii) 12	4 6 8	10 $\frac{1}{2}$ 10 $\frac{1}{2}$ 10 $\frac{1}{2}$	..	..	..	..	..	2,032
18	Carpentry School, Fyzabad.	..	..	..	..	..	(i) 8 (ii) 7 (iii) 7	3 5 7	10 $\frac{1}{2}$ 10 $\frac{1}{2}$ 10 $\frac{1}{2}$	..	..	..	..	..	930
19	Carpentry School, Dehra Dun.	(i) 2 (ii) 1 (iii) 1 (iv) 1 (v) 1 (vi) 1 (vii) 1	5 6 8 7 10 9	10 $\frac{1}{2}$ 10 $\frac{1}{2}$ 10 $\frac{1}{2}$ 10 $\frac{1}{2}$ 10 $\frac{1}{2}$ 10 $\frac{1}{2}$	4 (6) ..	30	..	..	..	..	..	..	..	(7)40	510

(1) Prizes are awarded at the close of the year in the shape of books, tools, etc.

(2) Awarded in the shape of tools of Rs. 30 per set.

(3) Reserved for weavers.

(4) Awarded in the shape of tools.

(5) Awarded at the end of the year in the shape of books, tools, etc.

(6) Artisan scholarships.

(7) Awarded at the end of the year in the shape of tools.

APPENDIX IX—(concluded)

Statement of Scholarships and Stipends at the Government Technical and Industrial institutions as provided in the budget for 1933-34—(concluded)

Serial number	Name of institution	Scholarships			Leaving scholarships			Stipends general			Artisan stipends			Leaving stipends			(1) Prize Amount	Total amount sanctioned for 1933-34 (deducting "probable savings")
		Number	Value at	Period (tenable for (in months)	Number	Value at	Period (tenable for (in months)	Number	Value at	Period (tenable for (in months)	Number	Value at	Period (tenable for (in months)	Number	Value at	Period (tenable for (in months)		
20	Leather Working School, Cawnpore.	4	15	10½	10	(2)30	..	4	7	10½	2	20	10½	..	..	..	..	1,271
21	Leather Working School, Meerut.	4	12	10½	5	(2)30	..	(i) 2 (ii) 2	6 8	10½ 10½	..	20	10½	..	..	..	..	1,087
22	Tanning School, Fatehpur.	..	..	..	..	..	..	10	5	11	..	..	..	..	..	..	..	550
23	Metal Working School, Aligarh.	..	..	..	..	..	..	(i) 10 (ii) 5	4 5	10½ 10½	..	..	..	..	..	..	(3)60	743
24	Baruk Prashed Khattri Industrial Institute, Benares.	(i) 3 (ii) 3 (iii) 9	5 6 7	12 12 12	..	..	..	..	..	..	12	15	12	..	..	..	(3)25	2,761
25	School of Arts and Crafts, Lucknow.	10	15	10	15	(4)30	..	(i) 11 (ii) 8 (iii) 16 (iv) 15 (v) 9	10 9 8 6 15	10 10 10 10 (4)10	7	25	10	..	..	..	(3)50	7,355

(1) Prizes are awarded at the close of the year in the shape of books, tools, etc.

(2) Awarded in the shape of tools.

(3) Awarded at the end of the year in the shape of books, tools, etc.

(4) For Drawing Teachers' Training class.

NOTE.—The number and value of stipends and scholarships given in this statement are those sanctioned by the Government and provided in the Budget. The number and value of those actually awarded might be different from those as they can be altered within the total amount sanctioned under each head by the Director of Industries on the recommendation of the Advisory Committee of each school.

APPENDIX X

Statement showing particulars of long-term foreign industrial and technical scholarships granted by the United Provinces Government.

(Para. 215 of report)

Year	Name of recipient	Subject of study	Term of scholarship	Total amount of scholarship	Whether the scholarship-holder has started business or been employed somewhere on return from abroad
1	2	3	4	5	6
1907	Mr. Lakshmi Chand	Dyeing and textile..	Years. 2	£ 300	Returned on 1st May, 1910. Served for a short period at Prem Mahavidyalaya, Brindaban, Kalabhavan, Baroda, and other technical institutions. Has since died.
1908	Mr. J. P. Srivastava	Ditto ..	3	450	Returned on 22nd March, 1912. Employed as Industrial Chemist to this Government. Pay Rs. 500—35—605 per month. Entered business. Became one of the directors of New Victoria Mills, Limited, Cawnpore. Now Minister for Education and Industries, United Provinces.
1908	Mr. S. M. Yusuf	Ditto ..	2	300	Worked for two years as Superintendent of Amrehi Kalabhavan, Baroda, and then as Analytical Chemist to Br. Burma Petrol Company, Limited, Raigoon. While working as Principal, Dyeing and Printing School, Cawnpore, he devised a new process of fast calico printing. In this post he remained for two years. Then he served for two years as Professor of Chemistry, M. A. O. College, Aligarh.
1910	Mr. A. S. Yadav	Mechanical engineering.	2	300	Returned in October, 1914. Has served as an Assistant Engineer in the Government School of Engineering, Nagpur, pay Rs. 200—20—300 per mensem. At present Principal, Technical School, Gorskhpur, pay Rs. 400—50—750.
1910 1911	Mr. H. J. Newson Mr. R. C. Srivastava	Ditto .. Sugar manufacture	2 3	300 450	Whereabouts not known. Returned on 7th December, 1915. Employed as Distillery Manager in the Cawnpore Sugar Works, Limited, pay Rs. 350—25—400 per mensem and house rent allowance Rs. 50 per mensem. Appointed as Manager of the Pachrukhi Sugar Mills, Gorskhpur. Appointed Deputy Director of Industries (Education) under the United Provinces Government in the grade of Rs. 1,250—50—1,500 with effect from 1st September, 1928. At present on deputation to the Government of India as Sugar Technologist to the Imperial Council of Agricultural Research for three years from 3rd July, 1930, in the grade of Rs. 1,600—100—1,900. His term has been extended for two years.

APPENDIX X—(concluded)

Year	Name of recipient	Subject of study	Term of scholarship	Total amount of scholarship	Whether the scholarship-holder has started business or been employed somewhere on return from abroad
1	2	3	4	5	6
1913	Mr. A. R. Khan	Sugar Industry	Years. 4	£ 600	Returned in 1917. Started a sugar factory in Dhampur (Bijnor District) but had to close it on account of the War. Has worked as Sugar Chemist in the Empire Engineering Company, Cawnpore. Appointed Lecturer in Sugar Technology, Harcourt Butler Technological Institute, Cawnpore, from 25th May 1928, in the grade of Rs. 350—25—600.
1912	Mr. Krishna Lal	Ditto	2	300	Returned in 1919. Employed as a temporary Engineer under Military Works Service at Lahore on a consolidated pay of Rs. 500 together with travelling allowance as first class officer. Present whereabouts unknown.
1918	Mr. M. P. Bhargava	Grass Pulp Working	3	450	Appointed by the Secretary of State for India to the Imperial Forest Service, working as Assistant to Paper and Pulp Expert, Delra Dun.
1916	Mr. M. C. Gupta	Sanitary Engineering	3	450	Appointed Assistant Executive Engineer, III Engineering Division, Public Health Department, Lucknow, on a pay of Rs. 700. (His name does not appear in the Civil List, so he is probably no longer in Government service. He is believed to be now Municipal Engineer, Allahabad.)
1917	Mr. P. D. Kapur	Sugar Engineering	2	300	No knowledge about his career. His return passage was forfeited owing to insubordination and refusal to return to India. Whereabouts at present not known.
1917	Mr. J. C. Mukerji	Tanning	4	600	No knowledge about his career. His return passage was forfeited owing to insubordination and refusal to return to India. His present whereabouts not known.
1919	Mr. V. N. Sahai	Dyeing and Textile	2	300	Died in England.
1919	Mr. M. N. Bahuguna	Wood Distillation	3	450	Returned in April, 1923, appointed as Wood Tar Expert in Forest Department on 1st June, 1923, pay Rs. 300 per mensem. Present whereabouts and other details not known due to absence of replies to inquiries.
1922	Mr. Ram Charan	Glass Working	3	750	Returned in October, 1923, was appointed a temporary Lecturer for one academic year in the Benares Hindu University in August, 1926, was appointed Assistant Manager of the Benares Bank, Limited, Benares. In September, 1928, he induced a capitalist at Bikaner to start a modern glass factory, which was opened in 1930, by Sir M. N. Mehta. Remained General Manager of the works till March, 1931, when the factory was closed. Now in England on private business.

1923	Mr. R. D. Pant	..	Dyeing and Printing	2	480	Returned on 25th September, 1925. Employed by the Cawnpore Dyeing and Cloth Printing Company, Limited, as a permanent Dyeing Master on a salary of Rs.275 per mensem in 1926. Present whereabouts not known. Employed at the Harcourt Butler Technological Institute, Cawnpore, as Assistant Research Chemist at Rs.300—20—500 per mensem from 5th March, 1921.
1924	Dr. N. G. Chatterji	..	Oil Industry	2	480	Employed by the Norman Shoe Factory, Agra, under the name of S. I. Raza etc. etc., as Managing Agent. Now employed as Lecturer in Leather Chemistry at the Harcourt Butler Technological Institute, Cawnpore, on Rs.330—25—000. Retrenched from 30th November, 1932.
925-26	Mr. Haider Raza, B.Sc.	..	Leather Industry	3	720	Is Assistant Electric Mechanical Engineer, pay Rs. 300 from 12th November, 1930, conveyance allowance Rs.70.
925-26	Mr. Nipendra Nath Chakravarty.	..	Electrical Engineering.	4	900	Since return to India, working as sole representative to Messrs. Duncan Stewart and Company, Limited, Sugar machinery makers of Glasgow. Designed and erected the 300 tons cane sugar factory at Padrauna Raj Krishna Sugar Works, Limited, Gorakhpur, during 1929-30.
926-27	Mr. Raza Husain Khan	..	Sugar Industry	2	480	Returned in November, 1928. Employed since then as Assistant Engineer, Jossop and Company, Calcutta, worked in their Press shop, structural works, Dum Dum, as fireman in charge for eight months. Supervised erection of steel structures for outdoor department. He worked in the hardware department. Such chances where the special knowledge acquired abroad could have been of use have not been available.
926-27	Mr. Jai Mangal Sinha	..	Mechanical Engineering.	2	430	Is out of employment since his return from abroad.
927-28	Mr. Abdul Wahed	..	Electrical and Mechanical Engineering.	2	480	Returned to India in November, 1929. Worked as Chief Chemist to Nowri Sugar Works, Bhatni, Gorakhpur, for the cane season of 1930-31. Now working as Chief Chemist and Sugar Manufacturer at the Sonapat Factory of the Punjab Sugar Corporation, Limited.
927-28	Mr. K. K. Bhargava	..	Sugar Industry	2	480	Has been appointed as Assistant Electrical Engineer on South Indian Railway on Rs.300 per mensem.
928-29	Mr. Lakshmi Narain	..	Electrical Engineering.	3	720	Has got some employment in a mill at Bombay.
928-29	Mr. S. D. Vashist	..	Textiles	3	720	Is employed with the Bengal Potteries Limited, Calcutta. Has had little opportunities of work so far.
928-29	Mr. H. N. Roy	..	Ceramics	3	720	Has started his own factory at Agra.
929-30	Mr. K. L. Muir	..	Shoe-making	2	480	Returned to India in December, 1932.
929-30	Mr. V. K. Srivastava	..	Electrical Engineering.	3	720	Still in England.
929-30	Mr. A. S. Faruki	..	Shoe-making	3	606	

APPENDIX XI

(Paragraph 215 of report)

Statement showing particulars of the short-term scholarships given by the Industries Department during the years 1926-27 to 1932-33

NOTE—The amount of the scholarship in each case was Rs.2,500 and the usual term six months. In some cases, scholars were allowed to stay abroad for a longer period, but no extra expenditure was incurred by Government on this account.

Name of recipient	Subject of study	Whether the scholarship-holder has started business or been employed somewhere on return from abroad
1923-27		
1. Mr. Hargovind Mista	Hosiery work ..	Has established hosiery factory and machinery sales depot with the assistance of this department. Now eleven factories have been established by his efforts. Is again sailing to England.
2. Mr. T. N. Ganjwar, B.Sc.	Leather ..	Joined Messrs. Cooper Allen and Company, Cawnpore, as factory assistant (Leather Department). Is now employed with the Model Industries, Dayalbagh, Agra.
3. Mr. Khwaja Muhammad Ishaq, B.A.	Sugar ..	Believed to be in the private service of Raja Nandgaon of Central Provinces.
4. Mr. Ishwari Prasad Mathur, B.Sc.	Toilet soap ..	Has started the "Marble Soap Works" at Cawnpore.
1927-28		
5. Mr. F. L. Hoare ..	Boot and shoe	Employed in Messrs. Cooper Allen and Company, as Assistant Foreman (Boot and Shoe Department).
6. Mr. Muhammad Hazzur Alam.	Leather ..	Joined the firm "Asiatic Leather Company," Cawnpore (Leather Department).
7. Mr. S. N. Bose ..	Tailoring ..	Opened his own shop of tailoring on the Mall, Cawnpore.
8. Mr. Rohatgi, M.A. ..	Optical lenses	Is in charge of the lens manufacturing works of Messrs. Rohatgi and Brothers, Meston Road, Cawnpore.
9. Mr. Anand Lal Shah	Poultry farming.	Has passed National Diploma Examination in dairying and poultry farming. Is out of employment.
10. Mr. Mukhtar Ahmad Khan.	Wood-working	Joined his firm of Ayub Khan and Sons, Bareilly, as foreman in charge of wood works and commercial traveller.
11. Mr. G. S. Mathur ..	Electrical engineering.	Joined the Irrigation Department of the Province as an Engineer, Hydro-Electric Division.
12. Mr. S. B. Mathur ..	Ditto ..	Is in the Electric Supply Company, Limited, Aligarh.
1928-29		
13. Mr. S. N. Roy, B.Sc.	Soap ..	Has started a soap and technical works.
14. Mr. Sardar Gur Bachan Singh.	Weaving and dying.	Joined the Cotton Mills, Cawnpore, as an Assistant Weaving Master.
15. Mr. Ram Prasad Singh	Paper ..	Joined the Paper Mills Company, Limited, Lucknow. Is at present Chief Engineer in the Company.
16. Mr. Akhtar Husain Mirza, B.Sc.	Electro deposition on metals.	Joined his father's business.

APPENDIX XI—(concluded)

Statement showing particulars of the short-term scholarships given by the Industries Department during the years 1926-27 to 1932-33—(concluded)

Name of recipient	Subject of study	Whether the scholarship-holder has started business or been employed somewhere on return from abroad
17. Mr. B. K. Bose ..	Cotton spinning	Is out of employment at present.
18. Mr. S. D. Bansal ..	Dry cleaning ..	Has started "The New Delhi Dye Works" in New Delhi.
1929-30		
19. Mr. P. S. Caprihan. .	Dairy farming	Has resumed charge of the Superintendent of R. E. I. Dairy Farm, Dayalbagh. Has prepared a scheme which is under the consideration of Government.
20. Mr. Teja Singh ..	Modern methods of cloth production.	Joined "The Victoria Mills Company, Limited," Cawnpore, where he was first employed as Assistant Weaving Master. Is now employed with the New Ram Chand Gur Sahai Cotton Mills, Hathras.
21. Mr. G. B. Dikshit ..	Cricket balls ..	Is working in his old firm of Dikshit and Company, Meerut. Intends to extend the business and to manufacture fresh cricket balls which will be as good as foreign.
22. Mr. K. K. Moghey ..	Repairs and testing of magnetos and electrical measuring instruments.	Working with "The Universal Engineering Company, Limited," Allahabad, which was started with his advice but before his return from abroad. (Repairs and testing of magnetos and electrical measuring instruments.)
1930-31		
23. Mr. H. N. Mathur ..	Automobile engineering.	Still in England.
1931-32		
21. Mr. Zahid Omar ..	Textiles ..	Employed in the Indian Stores Department.

APPENDIX XII

Reorganization scheme for the Allahabad Carpentry School.

(Para. 189 of report)

In 1918 the Wood Working Institute, Bareilly, was transferred to the control of the Forest Department and it was felt desirable to have a wood working institution under the control of the Industries Department for the training of artisans and middle-class young men. Accordingly the carpentry school at Allahabad was started in 1919, and it rapidly expanded its work, paying special attention to the training of students in craftsmanship and to the development of improved design and construction as against mass production methods and the use of machinery taught at Bareilly. In 1923 the Bareilly Institute was retransferred to the control of the Industries Department and since then the Industries Department has been running two institutions for practically the same kind of instruction. As explained in paragraph 189 of Chapter VII of the Report, the Committee suggests the conversion of the school into a district or feeder school of the type of the existing district carpentry schools at Naini Tal, etc., but of a somewhat higher status.

2. The objects of the reorganized school should be to impart training in general wood working, free-hand and scale drawing and design, elementary wood finishing, costing, etc. to enable the students to become capable and skilled wood workers.

In other words, it should aim at turning out sound practical carpenters rather than persons who are to hold supervisory or controlling charge.

3. It is accordingly proposed that there should be two courses at the school, viz. (1) an elementary wood working course, the duration of which may be three years, for students possessing general education and artisan boys ; and (2) an extension course of two years duration *mainly directed* to training on commercial lines for artisans and for students who pass the elementary wood working course. The latter will, on completing their training in the elementary course, have the option of joining this commercial extension course or of going to Bareilly, and taking up either the general advanced wood working course or one of the specialized courses such as polishing, upholstery, etc. at the Central Wood Working Institute, Bareilly. Special stipends may be provided at the Bareilly Institute for ex-students of the Allahabad School. This course is primarily intended for those who desire

to set up as practical carpenters and it is expected that local artisans will take advantage of it because of its practical nature. Non-artisans will not be admitted to this course unless they have passed the 3 years' wood working course.

4. It will be seen that according to this reorganization scheme only one course, viz. the teachers' training class will be wholly closed down, while the instruction at present imparted in special classes for polishing, painting, upholstery, etc. will continue to be given in the ordinary courses, though only to the extent required for the elementary course.

5. It is estimated that it will be possible to carry on the work along these lines with only nine instructors instead of 20 as at present and that the total cost of the school will be about Rs.17,000 as against Rs.55,000. The budget given below shows approximately how the cost has been arrived at together with details about the staff. It is presumed that the present building will be utilized for other purposes, if necessary, and the school housed either in a portion of it or in a rented building.

Heads and items	No.	Initial cost	Average cost	Ultimate cost
I—PAY OF OFFICERS		Rs.	Rs.	Rs.
Nil.				
II—PAY OF ESTABLISHMENT				
Instructors				
Head Master (Rs.150—10—300)	1	1,800	2,856	3,600
First Master (Rs.100—5—150)	1	1,200	1,620	1,800
Senior Instructors (Rs.60—3—90)	2	1,440	1,944	2,160
Junior Instructors (Rs.50—2—60)	2	1,200	1,392	1,440
Drawing Master (Rs.60—2—80)	1	720	888	960
Polisher (Rs.30—1—40)	1	360	444	480
Caner and Upholsterer (Rs.30—1—40)	1	360	444	480
Total, Instructors	9	7,080	9,588	10,920
Clerks				
First Clerk (Rs.50—2—60)	1	600	696	720
Store-keeper and typist (Rs.30—2—50)	1	360	540	600
Total, Clerks	2	960	1,236	1,320
Servants and Attendants				
Chowkidar at Rs.12 per mensem	1	..	144	..
Peon at Rs.12 per mensem	1	..	144	..
Total, Pay of Establishment	13	..	11,112	..
III—TRAVELLING ALLOWANCE .. .. .	..	..	200	..
IV—SUPPLIES AND SERVICES				
1. Stipends— (6 at Rs.4 per mensem each) }	..	..	725	..
(9 at Rs.5 " " " " ) }	..	..	..	..
2. Scholarships tenable for 1½ months .. .. .	..	..	607	..
3. Commercial operations .. .. .	..	..	500	..
4. Purchase of material and stores .. .. .	..	..	1,030	..
5. Miscellaneous .. .. .	..	..	795	..
Total, Supplies and Services .. .. .	..	..	3,657	..
V—CONTINGENCIES				
Two coolies at Rs.12 per mensem each	2	..	288	..
Other Contingencies, Total .. .. .	..	..	813	..
Rent at Rs.100 per mensem .. .. .	..	..	1,200	..
Purchase of books and periodicals .. .. .	..	..	50	..
Total, Contingencies .. .. .	..	..	2,351	..
Total, Government Carpentry School, Allahabad.	..	..	17,320	..

APPENDIX XIII

Budget provision and expenditure on the Industries Department for the year 1921-22 to 1933-34

Financial year	Direction		Industrial education																			Loans actually advanced
	General	Stores Purchase Section	(Construction and maintenance of industrial office building)	Government institutions			Contribution to maintenance of educational buildings	Grants-in-aid					Total	Foreign scholarships	TOTAL INDIAN EDUCATION	Grant at the disposal of the Board of Industries	Arts and Crafts Emporium		TOTAL PROJECT PROVISION	Actual expenditure		
				Harcourt Butler	Other institutions	Commercial operations		Contribution to dis-tributed boards	Grants to other bodies	Provision for commercial												
										Rs.	Rs.											
												Rs.					Rs.					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20			
1921-22	90,900	..	..	92,800	4,52,172	31,200	1,06,921	..	..	22,076	22,076	2,600	5,98,218	..	10,452	15,000	8,20,921	9,39,180	300
1922-23	1,53,179	19,222	..	1,59,790	4,34,881	35,000	6,38,320	..	..	35,452	35,452	2,600	6,65,123	15,000	11,335	25,000	15,27,179	8,57,142	11,12,600	
1923-24	1,26,169	19,970	..	1,63,563	8,50,414	34,400	2,55,255	..	..	36,122	36,122	4,350	10,41,409	15,000	11,748	25,000	15,41,991	10,29,891	..	
1924-25	1,16,015	22,290	..	1,69,882	5,90,777	40,400	90,253	..	..	28,229	28,229	7,000	9,32,573	25,000	11,868	25,000	11,31,703	10,16,218	1,56,000	
1925-26	1,28,710	26,209	6,460	1,58,238	6,05,227	49,000	98,128	..	..	32,352	32,352	12,000	9,53,545	25,000	12,264	25,000	11,65,743	10,90,364	1,09,700	
1926-27	1,65,040	31,612	6,025	2,18,509	7,01,089	25,800	36,118	..	16,828	51,046	70,374	10,700	10,62,930	25,000	17,120	25,000	13,32,845	11,94,129	8,000			
1927-28	1,51,837	32,776	18,333	2,20,412	7,34,614	17,381	1,47,454	17,566	31,232	86,717	1,35,305	35,500	12,94,406	39,900	17,082	23,000	15,74,944	13,55,770	65,000			
1928-29	1,77,827	35,078	5,848	1,96,689	7,27,959	8,299	2,00,290	8,796	29,600	50,393	97,798	39,000	12,60,816	35,000	17,213	10,000	15,41,782	12,79,447	40,000			
1929-30	1,77,151	35,824	5,571	1,97,411	7,11,917	1,53,000	1,62,361	8,001	27,634	1,56,610	1,92,335	39,529	14,09,097	35,000	12,101	75,000	18,09,694	14,56,049	..			
1930-31	1,65,051	35,578	5,871	2,89,376	6,87,181	93,000	1,35,171	8,250	28,182	80,764	1,17,186	35,500	13,58,901	35,000	11,825	50,000	16,92,819	13,35,992	21,600			
1931-32	1,81,490	37,590	5,870	3,10,910	6,90,536	84,000	74,245	7,000	26,090	83,440	1,16,149	28,253	13,06,201	35,000	12,936	30,000	15,89,707	12,01,355	23,900			
1932-33	1,10,292	17,646	3,700	1,36,524	5,65,091	70,000	26,200	7,000	22,499	74,125	1,03,525	8,049	9,60,840	20,000	12,819	50,000	11,35,837	8,50,446	..			
1933-34	84,049	10,985	10,000	1,72,110	5,97,168	58,400	21,236	6,808	10,632	63,010	81,110	7,320	9,37,674	20,000	18,778	60,000	11,45,680	..	..	

For footnote to this table see reverse.

FOOTNOTE TO APPENDIX XIII

- (1) *Column 2*—The leave salary payable in England and the cost of passage of the foreign scholars have been included under column " Direction—General " (column 2).
- (2) *Column 4*—The provision for minor and petty works and maintenance and repairs is shown under Industries Budget head C—Works, and that for the construction of major works under Public Works department budget. The bulk of the provision has been for buildings of industrial institutions, but in order to give accurate classification the provision has been split up under Direction and Industrial Education respectively and shown separately in column 4 and 5 respectively. It will be noted here that up to the year 1928-29 the budget provision under this head was intended to provide the net expenditure under commercial operation, i.e., after deducting recoveries from the gross provision. The schools were authorized to draw advances from the treasury with certain fixed limits which usually were 3 to 4 times of the net provision for commercial operations. Since 1929-30 the accounting system was changed and the provision that is made is expected to be recovered annually so that there is no provision for net expenditure under this head.
- (4) *Column 13*—Foreign Scholarships—the cost of passages for the scholars is included under head Direction General—column 2. The figures given in this column of course include the provision made under the budget head " Expenditure in England ".

APPENDIX XIV

(Vide paragraphs 83 and 245 of the Report)

FINANCIAL EFFECT OF THE COMMITTEE'S PROPOSALS

An attempt has been made in this Appendix to indicate roughly the financial effects of the main proposals of the Committee.

The calculations are provisional and in some cases hypothetical.

1—MARKETING (CHAPTER III)

(A) The Emporium (Artware)

(i) *Main office at Lucknow*

Item	Recurring	Non-recurring	Commercial operation and advances
	Rs.	Rs.	Rs.
1. Average pay of Craftsman Designer (80—120)	1,200	..	..
2. Pay of one Travelling Agent (60—80) ..	900	..	..
3. Commission to part-time travellers ..	2,000	..	..
4. Additional provision for travelling allowance..	500	..	..
5. Additional provision for publicity propaganda and miscellaneous charges for developing Indian business.	3,400	..	..
6. Additional provision for commercial operations	..	..	2,00,000
Total, Main Office ..	8,000	..	2,00,000

(ii) *One Branch*

(N.B.—New branches will be opened gradually, and will be handed over to private agency after working for a year or two. For purposes of calculations, therefore, annual provision for two branches may be taken into account.)

Item	Recurring	Non-recurring	Commercial operation and advances
	Rs.	Rs.	Rs.
1. Initial cost of establishing a branch which may be recovered from the successor of the branch.	..	..	1,500
2. Staff [1 Branch Manager on Rs.100--5-150, 2 Salesmen on Rs.45--60 each, 1 typist clerk on Rs.45, 2 peons and 1 chaukidar].	4,000	..	..
3. Travelling and other allowances ..	500	..	..
4. Rent	1,000	..	..
5. Furniture and fittings ..	500	..	..
6. Advertisement and other contingencies ..	2,000	..	..
	8,000		
Deduct for trading profits	—2,000		
Total cost to Government on one Branch ..	6,000	..	1,500
Ditto for two Branches	12,000	..	3,000

(iii) *Foreign Business*

Item	Recurring	Non-recurring	Commercial operation and advances
	Rs.	Rs.	Rs.
1. Travelling allowance for officer sent abroad .. (N.B.—The larger provision that will be required in the first year and has been shown under non-recurring and the normal annual expenditure under recurring.)	3,000	3,000	..
2. Advertisement and propaganda by means of catalogues, advertisement in foreign journals, and through show-cases in hotels, ships, etc.	8,000	..	..
3. One Foreign Agency— (a) Cost of transshipment of goods, miscellaneous expenditure on postage cables, customs duty, etc.	5,000	..	..
(b) Non-recurring and recoverable expenditure on purchase of initial stock of samples.	..	..	15,000
(c) Replacement of samples and depreciation of stock.	4,000	..	..
Total, Foreign Business ..	20,000	3,000	15,000
Total for marketing of Artware (A) ..	(i) Recurring .. 40,000 (ii) Non-recurring .. 3,000 (iii) Commercial operations, etc. .. 2,18,000		

(B) Commercial Museum (for non-artware products of minor and cottage industries)

Item	Recurring	Non-recurring
	Rs.	Rs.
1. Pay of staff — 1 Assistant Manager (100—150), 1 Assistant (50), 1 typist clerk (50), 2 peons, 2 commercial travellers (75)	4,800	..
2. Travelling allowance and honoraria	2,000	..
3. Replacements of samples	4,000	..
4. Preparation and execution of new designs	1,000	..
5. Participation in exhibitions in India	2,000	..
6. Advertisements	3,000	..
7. Contingencies and rent	3,200	..
8. Non-recurring for initial purchase of samples .. .. .	..	50,000
Total for Commercial Museum (B)	20,000	50,000

(C) Sole buying agency for non-art cottage products

Subsidy to one agency (which, to begin with, will confine its activities to handloom textiles produced by co-operative societies)	5,000	..
Total (C)	5,000	..

(D) U. P. Marketing Association

Item	Recurring	Non-recurring	Commercial operation and advances
	Rs.	Rs.	Rs.
1. Initial subsidy for preparing catalogues, directories, etc. .. .. .	..	25,000	..
2. Recurring subsidies for the association and its agencies.	25,000	..	..
Total (D)	25,000	25,000	..
Advance for purchasing shares. .	..	..	2,00,000

(E) Industries Fair

Item	Recurring	Non-recurring
	Rs.	Rs.
1. <i>Staff</i> : [1 Superintendent (125), 1 typist clerk (50), 2 peons and 1 chaukidar].	2,550	..
2. Contingencies	450	..
3. Rent	1,500	..
4. Replacement of samples	500	..
5. Cost of initial stock of samples .. .. .	..	10,000
Total (E) Recurring ..	5,000	..
Non-recurring ..	10,000	..

II—FINANCIAL AID (CHAPTER V)**A—Loans**

(N.B.—The provision required for advancing small loans or for the contingent loss on dealings with the financing corporation cannot be estimated.)

Item	Recurring	Non-recurring	Advances
	Rs.	Rs.	Rs.
1. Subsidy to the financing corporation ..	10,000	..	..
2. Advance in the shape of shares, etc. ..	..	..	2,00,000
Total (A)—Recurring	10,000	..	..
Advances ..	2,00,000	..	..

B—Grants

Item	Recurring	Non-recurring
	Rs.	Rs.
Additional provision for grants to be made by the Board of Industries	30,000	..

III—INDUSTRIAL AND TECHNICAL EDUCATION

Increases

	Recurring	Non-recurring
	Rs.	Rs.
1. Staff for the glass industry at the Technological Institute	10,000	10,000
2. Reorganization of the Technical School, Lucknow ..	1,600	20,000
3. Strengthening of the Metal Working School, Aligarh ..	1,500	10,000
4. Providing instruction in machine worked processes at the Leather-Working School, Cawnpore.	1,000	5,000
5. Twelve tuitional classes	25,000	..
6. Additional provision required for foreign scholarships ..	22,000	..
Total ..	61,100	45,000

Reductions

[The financial effect of some of the recommendations, e.g. levying of fees, reorganization of the system of stipends and scholarships, overhauling of the school budgets, has not been calculated.]

	Expenditure proper	Provision for commercial operations
	Rs.	Rs.
<i>(a) Abolition of institutions</i>		
(i) Technical School, Jhansi	20,000	..
(ii) Leather Working School, Meerut	12,500	2,500
(iii) Tanning School, Fatehpur	7,300	500
(iv) Carpentry School, Fyzabad	8,500	1,000
(v) Carpentry School, Dehra Dun	7,600	4,000
(vi) B. P. K. I. Institute, Benares	11,000	250
(vii) Weaving and Cotton Printing School, Bulandshahr ..	14,500	500
(viii) Five model weaving schools	21,000	350
Total ..	1,02,400	12,250
<i>(b) Reorganization of institutions</i>		
(i) Carpentry School, Allahabad	40,000	..
(ii) School of Arts and Crafts	17,000	..
(iii) Central Weaving Institute, Benares, Dyeing and Printing School, and the Textile School, Cawnpore.	37,000	..
Total ..	94,000	..
<i>(c) Reduction of the provision for grants-in-aid</i> ..	21,000	..
Total estimated savings ..	2,17,000	12,250

IV—DIRECTION STAFF (CHAPTER VIII)

ABSTRACT

[In connexion with the financial effects of the recommendations under this chapter it may be pointed out that the budget provision under the head "Direction in the 1933-34 budget does not convey a correct impression of the facts; provision for the pay and travelling allowance of the Director is made in the Co-operative budget, and the post of Deputy Director has been held by an officer who draws pay as head of the Oil section. In the following table, figures for the sanctioned and the 1933-34 budgets have been given separately for purposes of comparison.]

Post	Sanctioned provision (average pays)	Provision in the budget for 1933-34	Proposed provision	
			Immediate	Average
	Rs.	Rs.	Rs.	Rs.
1. Director (I.C.S. of 20 years' service).	31,000	..	31,000	31,000
2. Deputy Director (I) ..	17,000	10,900	9,000	12,807
3. Deputy Director (II) (at present Assistant Director).	9,600	..	9,000	12,807
4. Two Assistant Directors, <i>vice</i> two Divisional Superintendents.	9,240	10,800	4,800	9,580
5. One Assistant Director (Stores), i.e. present Assistant Stores Purchase Officer.	5,412	4,800	4,800	4,790
6. Two Inspectors, <i>vice</i> one Divisional Superintendent.	4,620	5,400	2,400	3,310
Total, Pay ..	76,872	31,900	61,000	74,294
Travelling allowance	9,000	7,000	14,000	14,000
Total, Pay and Travelling Allowance.	85,872	38,900	75,000	88,294
<i>Real changes proposed—</i>				
<i>Increase—</i> 2 Assistant Directors ..	..	..	4,800	9,580
2 Inspectors ..	..	..	2,400	3,310
Travelling allowance ..	..	..	5,000	5,000
Total ..	..	..	12,200	17,890
<i>Reduction—</i> 3 Divisional Superintendents.	..	..	16,200	13,800

ABSTRACT

Head	Increases			Reductions		
	Recurring	Non-recurring	Commercial operations and advances	Recurring	Non-recurring	Commercial operations
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
I—MARKETING—						
(A) EMPORIUM	40,000	3,000	2,18,000	..	..	..
(B) COMMERCIAL MUSEUM ..	20,000	50,000	..	..	..	..
(C) SOLE BUYING AGENCY FOR NON-ART COTTAGE PRODUCTS.	5,000	..	..	..	..	..
(D) U. P. MARKETING ASSOCIATION.	25,000	25,000	2,00,000	..	..	..
(E) INDUSTRIES FAIR ..	5,000	10,000	..	..	..	..
Total ..	+95,000	+88,000	+4,18,000	..	..	..
II—FINANCIAL AID ..	+40,000	..	+2,00,000	..	..	..
III—INDUSTRIAL AND TECHNICAL EDUCATION.	+61,000	45,000	..	—2,17,000	..	—12,250
IV—DIRECTION—						
Average pay of new staff and additional provision for travelling allowance.	18,000	..	..	..	..	..
Savings on account of abolition of posts of Divisional Superintendents (maximum pay).	..	..	..	—16,000	..	..
GRAND TOTAL ..	+2,14,000	+1,33,000	+6,18,000	—2,33,000	..	—12,250

APPENDIX XV

SUMMARY OF RECOMMENDATIONS

(Para. 240 of report)

- Inter-
relation of
the pro-
posals.
Intensive
work.* 1. Our proposals for retrenchment and expansion of work are inter-linked and must be considered as a whole and not each separately. (Paragraph 6).
2. As the department cannot help all industries, it should carry on intensive work for on behalf of a few selected industries or in certain specified directions during the next few years. (Paragraph 26).
- Major
industries.* 3. It should pay special attention to the all round development of three major industries, viz., sugar, oil and glass though it should also keep in touch with other industries and give them such assistance as its resources permit. (Paragraph 26.)
- Minor and
Cottage
Industries.* 4. Minor and cottage industries should be helped in certain specified directions primarily (a) marketing, (b) giving them expert advice and (c) carrying on experimental and research work on their behalf in all with a fixed plan. (Paragraph 37.)
- Experts.* 5. An expert should be attached to the department for each of the three selected industries, who can give technical, and commercial assistance to the industry concerned and carry on research on its behalf on specific problems referred to him by it. (Paragraphs 52 and 53).
6. In addition there should also be in the department (a) an industrial engineer and (b) a commercial expert. (Paragraph 53.)
- Statistics
and com-
mercial
Intelli-
gence.* 7. The department should take up on a systematized basis the collection compilation and dissemination of the commercial intelligence. (Paragraph 55.)
8. Steps should be taken to (a) build up detailed monographs for the industries selected for intensive development (b) undertake a survey of consumption, i.e. of the markets for the products of the province and (c) bring the industrial surveys up to date and keep them so. (Paragraph 56.)
- Market-
ing.* 9. The proper development of marketing facilities should receive more attention and more money should be spent for this purpose. (Paragraph 58.)
- The
Emporium.* 10. The Arts and Crafts Emporium should continue on its present basis as a state owned institution for artware produced by cottage industrialists, working partly as a business concern and partly as an agency for publicity and propaganda. (Paragraph 72.)
11. Its primary aim should be to find or create markets and secure orders. (Paragraph 72.)

12. It should introduce new shapes and designs and improve the existing ones ; but in adapting the designs to the tastes of foreign buyers, the oriental character of the designs should be carefully maintained. (Paragraph 73 and 74.)

13. The Superintending Craftsman of the School of Arts and Crafts should act as an Adviser of Designs to the Emporium. (Paragraph 74.)

14. The Emporium should guide the cottage workers as to the exact nature of the articles to be made and what defects to avoid. (Paragraph 75.)

15. It should organize production and ensure that articles are manufactured according to specification, and for this purpose (a) Co-operative societies should be started and if necessary subsidized by Government, and (b) the services of reliable local agents utilized wherever practicable. (c) The touring staff of the department should help in this. (Paragraph 75.)

16. Care should be taken in placing consumers in direct touch with manufacturers, especially in the case of foreign buyers ; each case should be decided on its merits in the light of the reliability and capacity of the cottage workers and the local dealers on the one hand and the nature of the consumer or buyer on the other. (Paragraph 76.)

17. In order to develop the Indian trade, it should establish agencies in the more important towns, preferably by starting branches in the first instance which can, after working for a year or two be handed over to such agents in the beginning. (Paragraph 77.)

18. The Emporium should employ commercial travellers for the Indian trade ; some of them may be whole-time employers, while others may be part-time (i.e. employed by the Emporium in conjunction with other firms).

19. Special attention should be devoted to the development of foreign trade.

*Foreign
trade.*

20. The Emporium should expand its publicity and propaganda activities in the foreign markets by (a) advertising widely, especially in foreign trade journals and papers and booklets published for tourists, (b) publishing directories, catalogues, bulletins, leaflets, etc., (c) exhibiting samples in show-cases at railway stations, passengerships, tourist offices, hotels, etc. and (d) taking part in exhibitions and encouraging reliable manufacturers to do so. (Paragraph 80.)

21. (a) The Emporium should establish an agency in London, and later in other important centres in Europe, America, etc. if possible in partnership with one or more neighbouring provinces, (b) such an agency should (a) get its supplies from the United Provinces through the Emporium only, (b) supply information about changing tastes and new designs, and (c) do wholesale work only. (Paragraph 80.)

22. The prices charged in foreign markets should be lowered so as to comprise only the actual price, out of pocket expenses and a small profit—full publicity being given to this reduction in prices. (Paragraph 81.)

23. Only goods of a high standard should be sent abroad, so that the Emporium may acquire a reputation for selling only articles of good workmanship with a guarantee of quality. (Paragraph 81.)

24. Personal contact should be established with foreign traders by sending out a suitable officer on tour to the United Kingdom and later to Europe and America who would study the markets and established permanent trade connexions. (Paragraph 82.)

*Emporium
staff.*

25. A capable assistant should be attached to the emporium who can look after the work in the absence of the business manager. (Paragraph 83.)

26. A craftsman designers should be appointed for actually executing new designs for demonstration purposes. (Paragraph

27. The advisability of giving the staff a small commission on sales should be examined.

28. The amount at the disposal of the emporium for commercial operations should be increased to 2 lakhs.

29. Cottage workers who make non-art goods should be taught to specialize in the manufacture of articles which do not compete with factory products, popular designs and patterns being introduced and such articles should be standardized.

*Commercial
museum.*

30. A commercial museum should be established for non-art goods which would stock samples, and secure orders by carrying on propaganda activities. It may be run in conjunction with the Emporium, but as a separate branch thereof. (Paragraph 85.)

*Sole
buying
agent.*

31. A sole buying agent should be appointed if possible and subsidized if necessary for taking over all the handloom textiles produced by co-operative societies in the first instance, and if this experiment succeeds the system should be gradually extended. (Paragraphs 86 to 88.)

*U. P.
Marketing
Association.*

32. The possibility of establishing joint stock corporation, suitably aided by Government, and called the United Provinces Marketing Association (or Board) should be set up for establishing stores in the important towns where consumers can be sure of obtaining genuine United Provinces made goods of all kinds to meet their requirements, should be examined. (Paragraph 90.)

Exhibition.

33. (a) The department should continue to participate in exhibitions, both in India and abroad the object being not merely to sell a few articles or secure a few orders, but to establish permanent trade connexions.

(b) In order that the knowledge and experience gained at exhibitions may not be lost, a report should be prepared sum-

marising the results achieved and noting about the popularity of the designs exhibited, the tastes of buyers, etc.

(c) Stall space should be obtained at exhibitions for those manufacturers and dealers only who can be relied upon to exhibit articles of good quality and at fair prices so as to avoid the danger of the market being spoilt.

(d) When participating in exhibitions and fairs abroad, the department should co-operate with the High Commissioner and with other provinces, so as to combine economy with effective results. (Paragraphs 92 and 93).

34. The use of electricity whether generated by water or otherwise for industrial purposes should be encouraged. (Paragraph 105.)

*Use of
electric
powers.*

35. Practical demonstration and propaganda to make the economics of the electric drive more widely known to the general public, both urban and rural should be continued in close co-operation with the Irrigation, Industries, Agriculture and Co-operative departments. [Paragraphs 103(a) and 104.]

36. Detailed schemes for specific industries—which will have to be different schemes to suit the varying local conditions—should be drawn up giving a rough idea to prospective industrialists about the probable income and expenditure. (Paragraph 105.)

37. Facilities should be provided for the purchase of electrically driven machinery by granting *taqavi* and other advances. (Paragraph 105.)

38. The hydel tariff rates for small industries should be further reduced if possible. (Paragraph 99.)

39. The advisability of electrifying the remaining falls on the Ganges which have yet to be harnessed, may be examined when the development of load on the present grid area warrants such a step. (Paragraph 99.)

40. A special committee of industrial and banking experts should be appointed to draw up detailed schemes of financial aid to industries. (Paragraph 115).

*Financial
aid.*

41. Large loans (exceeding Rs.10,000) each are needed by industrialists, but should not be advanced by Government. (Paragraphs 111 and 112.)

*Large
loans.*

42. The possibility of advancing such large loans by establishing with Government aid either (a) a financing corporation on the lines recommended by the Central Banking Enquiry Committee or (b) an industrial branch of an existing commercial bank, as suggested by the Sir Brijendra Nath Seal Committee in Mysore, should be examined by experts. (Paragraph 114.)

43. The Board of Loan Commissioners should be abolished. (Paragraph 111.)

*Board of
Loan
Commis-
sioners.*

*Small
loan*

44. Small loans (not exceeding Rs.10,000 each) should be advanced by Government on the recommendations of the Board of Industries ; and some powers to sanction such loans should be delegated, if possible, to the Director of Industries. (Paragraph 111.)

45. Loans should continue to be given as hitherto to co-operative societies for industrial purposes, but the rate of interest should be reduced if possible and the whole of the risk of loss should not be placed on the financing bank. (Paragraph 117.)

46. The system of advancing Loans to ex-students of technical and industrial schools should continue and the procedure simplified where practicable. (Paragraph 118.)

*Other
forms of
financial
aid.*

47. The desirability of Government guaranteeing to a bank the loan given by the latter to an industrial concern under certain circumstances should also be examined by the committee of experts. (Paragraph 119.)

48. The feasibility of supplying machinery on the hire purchase system, either directly by Government or through an industrial financing corporation should be explored ; in addition to the hypothecation of the machinery itself, personal and collateral security should be taken. (Paragraph 120.)

49. The desirability of Government —

(a) subscribing to the share capital of industrial concerns,
or

(b) guaranteeing dividends on shares, especially in the case of pioneer industries, should be examined. (Paragraph 122.)

50. The feasibility of Government purchasing or guaranteeing the purchase of a fixed portion of the produce of cottage industrialists or subsidizing private concerns to do so should be looked into by the committee of experts. (Paragraph 127.)

51. The department should study the effect of octroi and other local taxes and bring such cases to the notice of the authorities concerned if it is found that trade is being seriously hampered. (Paragraph 128.)

52. In special cases help should be given by Government supplying land, raw materials, water, etc. free or at favourable rates to a particular concern or acquiring land on its behalf. (Paragraph 126.)

*Grants by
Board of
Industries.*

53. (a) The scope of the grants given by the Board of Industries should be increased so that they may be given for all industries which need them and not merely for pioneer, experimental or research work ; but grants should not be given for educational purposes save in exceptional circumstances. (Paragraph 125.)

(b) The grantees should normally be expected to find an equivalent sum themselves. (Paragraph 125.)

(c) The amount at the disposal of the Board for making these grants should be enhanced. (Paragraph 125.)

(d) The Board should exercise a closer watch over the utilization of the grants given by it. (Paragraph 125.)

54. A suitable sum should be placed at the disposal of the Director of Industries for making grants to educational institutions for experimental and research work. (Paragraph 125.)

55. The services of a Government expert should be placed at the disposal of an industry for a limited period to help it in carrying on research, etc. in particular cases deserving of such special assistance. (Paragraph 126.)

56. The advisability of adopting suitable measures in connexion with the imposition of tariffs, the reduction of railway freights, etc. should be brought to the notice of the Central Government as occasion requires. (Paragraph 128.)

57. The Stores Purchase Department should continue on more or less the same lines as at present, though its objects should be more clearly restated. (Paragraphs 133 and 137.)

*The
Stores
Purchase
Department.*

58. The Director of Industries as Stores Purchase Officer should be responsible for drawing up specifications, with the advice and assistance of consuming officers and should be the recognized authority for inviting tenders and placing orders for all stores required on behalf of Government departments, except when direct purchase is allowed. (Paragraph 139.)

59. The limit up to which consuming officers may make local purchases themselves, should be raised from Rs.50 to Rs.100. (Paragraph 142.)

60. In respect of such articles the department should enter into rate contracts only, and consuming officers should not be bound to make purchases from the contracting firms. (Paragraph 142.)

61. A list should be drawn up and kept up to date showing the articles in respect of which neither substitution nor economy is possible and also lists showing articles in respect of which (a) substitution and (b) economy can be effected. (Paragraph 143.)

62. The Director of Industries should be authorized to give a limited degree of price, and quality and preference to Indian made articles. In deciding the amount of price preference beyond certain limits he must act in consultation with the consuming officer concerned, subject to the rules framed by Government. (Paragraphs 140 and 141.)

63. The existing arrangements for inspection of articles supplied should be continued, but the agency of the Indian Stores Department should be utilized more often for this purpose. (Paragraph 144.)

64. The responsibility for giving to the contractor the certificate of discharge should be clearly laid down along the lines indicated by us. (Paragraph 145.)

65. Instructions should be issued as suggested by us so as to secure prompt payments to contractors. (Paragraph 147.)

66. Efforts should be made to induce municipalities, district boards and semi-Government bodies like universities, to utilize the services of the Stores Purchase Department. In suitable cases, Government grants to such bodies may be made subject to the condition that the Stores Purchase Department's agency is utilized. (Paragraph 148.)

67. The department should keep in close touch with industries and trade and with the Indian Stores Department. The officer in immediate charge doing more touring and acting as inspecting officer in respect of some classes of goods. (Paragraph 149.)

*Industrial
and
Technical
education.*

68. The quality of the training imparted at technical and industrial institutions and the number of the men trained should be closely co-related to the needs of the various industries. (Paragraphs 155 and 156.)

69. In order to create an industrial bias, manual training should be given where practicable at general educational institutions and for this purpose there should be close co-ordination between the Industries and the Education departments. (Paragraph 155.)

70. Broadly speaking the objects of technical and industrial education should be (a) to train artisans in improved methods and technique, (b) to enable middle class youngmen to set up in business, (c) to help middle class young men to secure employment in industries and (d) to supply industries with trained men. (Paragraph 152.)

71. To suit these different needs there should be three different types of schools, viz. (a) central vocational institutions, (b) elementary schools some of which may serve as feeders to the central schools and (c) tuitional or instructional classes for artisans. (Paragraph 158.)

*Central
Institution.*

72. There should ordinarily be one central school or institution for each industry or phase of industry. (Paragraph 159.)

73. It should be a fully equipped first class institution; it is better to have one first rate school than to go in for two or more second rate ones. (Paragraph 159.)

74. A central school should be in close touch with the industry concerned and impart training of a type needed by the industry and designed to qualify the students for it. (Paragraph 161.)

75. The number of students trained should be regulated in accordance with the needs of the industry, so that all those trained can be readily absorbed therein. (Paragraph 159.)

76. Provision should be made at the central schools for special training on suitable terms of young men who wish to take up the study of some particular line of work only, provided the regular work does not suffer. (End of paragraph 159.)

77. (a) A central school should have a commercial extension course for a year or two, either attached to it or in a neighbouring building, where ex-students, who desire to set up business can be taught and helped to carry on commercial operations on their own, under proper guidance from the school authorities. (Paragraph 163.)

Commercial extension course.

(b) The students at these commercial classes should work under ordinary industrial conditions, making articles themselves and selling the same under commercial conditions, keeping the profits (if any).

(c) Government should provide the capital cost for such training, and if necessary, give stipends; the running expenses should be borne by the student.

78. A regular system of apprenticeship in factories should be adopted for ex-students especially of those institutions which cater for the need of factory-scale industries, the influence of the Stores Purchase Department with the contracting firms being utilized for the purpose. (Paragraph 165.)

79. The central school should also carry on research and have a clear cut programme for the purpose, and carefully regulate the same according to the changing needs of the industry. (Paragraph 161.)

80. The head of the central institute should work as a Superintendent of the industry concerned and should be relieved of some of his teaching functions. (Paragraphs 54 and 161.)

81. In order to avoid duplication and extra cost, the possibility of setting up some central co-ordinating organization in order to secure inter-provincial co-ordination for the maintenance of central institutes should be examined. (Paragraph 162.)

82. Efforts should be made in the meanwhile to induce other provinces to help in maintaining some of the central schools in the United Provinces on condition that a certain number of students from those provinces are admitted to them. (Paragraph 162.)

83. For the training of artisans, one or more tutorial or instructional classes should be attached to the central institution for the respective industries. (Paragraph 166.)

84. (a) The teaching staff of each such class should ordinarily consist of a single expert instructor, who should be a real

ustad, whom the artizans can look up to as a master craftsman (Paragraph 166.)

(b) He should be interchangeable with other members of the central school staff and should keep his knowledge up to date. (Paragraph 166.)

85. The object of each class should be to impart to the artizans the knowledge of some particular new technique, to remove their specific difficulties and to introduce among them better methods and improved designs. (Paragraph 167.)

86. The instructor should go to the homes of the artizans instead of expecting them to come to him, and settle down in the heart of the locality where they live. (Paragraph 167.)

87. The class should not be a permanent fixture but should move to another locality after a period of from six months to two or three years, after the needs of the industry in that particular locality have been fully met and the objects for which the class was established there have been fulfilled. (Paragraph 167.)

88. The heads of the central schools concerned should be responsible for the technical supervision of these classes; they should receive monthly programmes, and inspect the work from time to time and see that it is carried on along right lines. (Paragraphs 161 and 168.)

89. Supervision of a general nature should also be exercised over these classes by the subordinate executive staff of the department and by inspectors and Assistant Registrars of Co-operative Societies (Paragraph 168.)

90. Close collaboration should be maintained between these classes and co-operative societies of cottage industrialists, as also between the instructors and the staff of the co-operative department. (Paragraph 170.)

91. Such of the existing institution and artizan classes which do not serve their purpose of training artizans should be closed down and replaced by instructional classes. (Paragraph 169.)

92. The number of instructional classes started should be adjusted to the needs of the industries concerned. (Paragraph 169.)

93. (a) Elementary schools should aim at supplying a definite local need and impart sufficient preliminary training to enable the students to obtain employment as subordinates or to pursue their studies in a central school. (Paragraph 171.)

(b) They should impart instruction to artizan boys as well as middle class young men. (Paragraph 171.)

(c) Students from these schools joining central schools should be given credit at the latter for the training received at the former. (Paragraph 171.)

(d) The curriculum of an elementary school which is designed to work as a feeder to a central school should be suitably adjusted for this purpose where practicable. (Paragraph 171.)

94. The heads of central schools should exercise supervision on the technical side over these elementary schools.

95. The desirability or otherwise of establishing an elementary school should be decided in each individual case on its merits with due regard to the need which it is intended to supply. (Paragraph 171.)

96. A number of the aided schools may be reorganized so as to function as either elementary schools or instructional classes. (Paragraph 202.) *C—Aided institutions.*

97. (a) The existing grants-in-aid should be scrutinized in accordance with the general principles suggested. (Paragraph 202.)

(b) Those of the aided schools which are not needed, should be closed, and the allotment for these grants-in-aid reduced from Rs.81,900 to Rs.60,000.

98. The grants for this purpose should be reduced from Rs.81,000 to about Rs.60,000. (Paragraph 202.)

99. Special facilities should be provided for imparting industrial education to members of depressed classes and to females. (Paragraph 202.)

100. The total allotment for grants-in-aid should be placed at the disposal of the Director of Industries for distribution among the various institutions in accordance with rules framed for the purpose. (Paragraph 203.)

101. When admitting students to industrial schools, preference should be given to those who are certified by the heads of the general institutions where they have studied, to have shown a special aptitude for such work. (Paragraph 204.) *D—Miscellaneous.*

102. Small fees should be charged from U. P. students and substantial fees from students from outside the United Provinces, unless definite arrangements are made with other provincial Governments for sharing the cost. (Paragraph 205.)

103. Stipends should be given primarily to help artisan boys and students of a distant locality and should be allowed only in exceptional cases to students belonging to the district in which the school is situated. (Paragraph 206.)

104. A certain number of stipends should be reserved at each central school by localities for deserving students belonging to other and distant districts. (Paragraphs 160 and 206.)

105. The value of the stipend should be reduced and in the case of those reserved by localities, adjusted so as to correspond to the increased expenditure that has to be incurred in going to a distant place. (Paragraph 206.)

106. The values of scholarships should be reduced and different scales fixed for first, second and third scholarships. (Paragraph 207.)

107. The number of scholarships awarded should also be suitably regulated on a uniform basis. (Paragraph 207.)

108. Scholarships should be made tenable for one year only and awarded on the results of the entrance and annual examinations. (Paragraph 207.)

109. Leaving scholarships should, where practicable, be replaced by allowance to ex-students who join commercial extension courses. (Paragraph 207.)

110. Prizes should be awarded for the best novel designs of articles and appliances judged in the light of their marketability. (Paragraph 207.)

111. Adequate hostel facilities should be provided at all central schools, but the cost of these hostels should be kept as low as possible. (Paragraph 208.)

112. The condition of work in central schools should be assimilated to those under which the respective industries are carried on ; for this purpose the number of working hours should be increased (especially where the work is largely of a practical nature) and the number of holidays decreased. (Paragraph 209.)

113. The night classes at the Leather Working School, Cawnpore and the School of Arts and Crafts, Lucknow, should be abolished and those at the technical schools retained. The question of maintaining such classes at other institutions should be decided on the merits of each case.

114. The teachers for practical instruction at schools should, when possible, be obtained from the industry concerned on deputation for a fixed period and then sent back. (Paragraph 211.)

115. Existing teachers should be sent out from time to time to the centres of the industries to get into touch with them and study the needs of the artisans. (Paragraph 211.)

116. Some teachers should be compelled to go on study leave every few years, so as to bring their knowledge up to date. (Paragraph 211.)

117. Definite principles, along the lines indicated, should be adopted for governing the sale of articles produced at schools, so that there may be no competition with private enterprise. (Paragraph 212.)

118. Regular meetings should be called of advisory committees and the members encouraged to pay surprise visits to schools and record inspection notes. (Paragraph 213.)

119. There should be a systematic overhaul of school budgets, with the aid of an Accounts Officer, so that they may present the situation more correctly and unnecessary expenditure may be cut down. (Paragraph 214.)

120. The number of both long-term and short-term scholarships should be increased to 3 and 6 respectively. (Paragraph 215.)

Scholarships should be awarded primarily in the subjects selected for intensive assistance.

The value of long-term scholarships should be from £125 to £150 a year in addition to cost of passages, tuition fees, etc., and that of short-term scholarships Rs.2,000. Two of the long-term scholarships should be awarded, at present particularly, for sugar engineering. (Paragraph 215.)

122. Short-term scholarships should be given preferably to men who are in the industry or trade concerned, provided suitable arrangements can be made for their training. (Paragraph 215.)

123. A tentative programme of scholarships showing the subjects for which they will probably be awarded during the following two or three years should be drawn up in advance. (Paragraph 211.)

124. (a) The oil section at the Harcourt Butler Technological Institute should be placed on a permanent basis. (Paragraph 174.)

B—Individual institutions.

(b) Glass Technologist should be appointed in succession for the different phases of the glass industry. (Paragraph 175.)

125. The Technical School, Lucknow, should be retained and reorganized in accordance with the scheme drawn up by Mr. R. C. Srivastava in 1930, with a minor alteration. (Paragraph 177.)

126. The Technical School, Gorakhpur, should continue at least for the present.

127. The Technical School, Jhansi, should be closed and suitable arrangements made, if possible, with the G. I. P. Railway for their employing a certain number of students trained at the Lucknow Technical School. (Paragraph 179.)

128. The Textile School, Cawnpore, the School of Dyeing and Printing, Cawnpore, and the Central Weaving Institute, Benares, should be combined into a single first class textile institute at Cawnpore and run at a cost of about Rs.80,000 a year. (Paragraph 184.)

129. The Weaving and Cotton Printing School at Bulandshahr should be closed and replaced by instructional classes for dyeing and for weaving, if necessary. (Paragraph 185.)

130. The Model Weaving Schools (except perhaps that at Almora) should be closed and replaced where necessary by instructional classes. (Paragraph 186.)

131. The Central Wood Working Institute, Bareilly, should be retained as the central vocational school for carpentry after such necessary reorganization as may be found necessary. (Paragraph 188.)

132. The Allahabad Carpentry School should be reorganized as a district carpentry school so designed as to act as a feeder to the Bareilly Institute at a cost of Rs.17,000 along the lines indicated by us. (Paragraph 189.)

133. The Carpentry Schools at Fyzabad and Dehra Dun should be closed, but that at Naini Tal should be retained. (Paragraph 190.)

134. The Leather Working School at Cawnpore should be retained as the central vocational institution for the leather working industry and the desirability of providing instruction in certain machine work processes should be examined. (Paragraph 192.)

135. The Leather Working School at Meerut should be closed, but a certain number of seats reserved at the Cawnpore School for students coming from Meerut and its neighbourhood and they should also be allowed special stipends. (Paragraph 193.)

136. The Tanning School at Fatchpur should be closed and replaced by one or more instructional classes, as required. (Paragraph 194.)

137. The Metal Working School at Aligarh should be retained and strengthened and should pay special attention to experimental work for the benefit of the hardware industry. (Paragraph 196.)

138. The Batuk Prasad Khattri Industrial Institute, Benares, should be closed and replaced, if necessary, by instructional classes attached to the School of Arts and Crafts. Arrangements should be made at the latter for imparting instruction in engraving of the Benares style. (Paragraph 198.)

139. (a) The School of Arts and Crafts should be reorganized along the lines indicated by us at a net cost of about Rs.60,000. (Paragraph 200.)

140. It should devote particular attention to helping in industrial development by evolving designs which are not only artistic but will find favour with the public, and should prepare such artistic products as are likely to find a sale.

141. The Lithographic Printing and Process Section at the School of Arts and Crafts should be closed.

142. The organization of the headquarters and expert staff of the department should be so planned as to secure experience in (i) administration, (ii) industrial engineering, (iii) trade and

commerce and (iv) various phases of technology. (Paragraph 225.)

143. The Director of Industries should be relieved of the charge of the Co-operative Department as soon as possible. (Paragraph 226.)

144. He should be called the Director of Industries and Trade.

145. He should ordinarily hold charge of his post for a minimum period of three years.

146. He should be an officer of experience capable of handling industrial and trade problems as also problems of finance.

147. One Deputy Director should be an industrial engineer and should also be in charge of technical and other education and industries based on engineering and known as the Deputy Director, Engineering and Education (E. & E.). (Paragraph 227.)

148. (a) Another Deputy Director should be a commercial expert in charge of the commercial development of industries including control of the Emporium and act as Secretary to the Board of Industries. He should be known as the Deputy Director (Trade). (Paragraph 228.)

(b) He should prepare a well-thought out programme for helping to develop each industry paying particular attention to trade and marketing.

149. There should be one Assistant Director in charge of minor and cottage industries. (Paragraph 229.)

150. There should be an Accounts Officer of the status of an Assistant Director who should besides being the financial adviser of the department inspect all educational institutions—State and aided. (Paragraph 230.)

151. There should be a third Assistant Director in charge of the Stores Purchase Section (corresponding to the present Assistant Stores Purchase Officer) having direct access to the Director. (Paragraph 231.)

152. The posts of Divisional Superintendents should be abolished. (Paragraph 232.)

153. Inspectors or supervisors should be appointed for performing the general executive work of the department, specially the collection of industrial and commercial information and inspection of elementary schools, instructional classes and aided schools. (Paragraph 232.)

154. Additional men on short-term contract should be appointed for the revision of the surveys of particular industries. (Paragraph 233.)

155. The Business Manager of the Emporium should have adequate administrative powers and should work under the supervision of the Deputy Director, Trade, as Controller. (Paragraph 234.)

156. The Statistician should have a carefully drawn up plan of work and he and his office should be merged in the staff of the Industries Department. (Paragraph 235.)

157. The instructional and menial staff should be brought on a general provincial cadre and the benefits of a contributory provident fund should be extended to them when financial conditions permit. (Paragraph 236.)

158. Except in the case of menials and ministerials service in the department should as a rule be on a contract basis. (Paragraph 237.)

159. Delegation of routine duties should be made, wherever possible in order to secure decentralization. (Paragraph 238.)

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